California Department of Agriculture

BULLETIN

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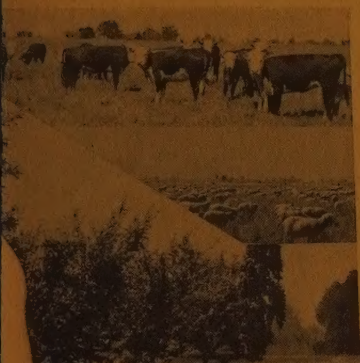


39th ANNUAL REPORT

PERIOD ENDING DECEMBER 31, 1958

Trucks: 129,416

Tractors: 149,384

Total Farms: 123,075

Cropland: 13,230,000

Commercial Farms: 89,418

Farm Population: 568,231

Farm Acreage: 37,795,000

Irrigated Acres: 7,048,000

Cash Farm Income in 1958: $2,797,429,000*

Over 140 Important Crops Grown Commercially

LEADS ALL STATES IN FARM INCOME

* Preliminary

COMMONWEALTH MYCOLOGI
5 OCT 1955

STATE OF CALIFORNIA
EDMUND G. BROWN, *Governor*
GLENN ANDERSON, *Lieutenant Governor*

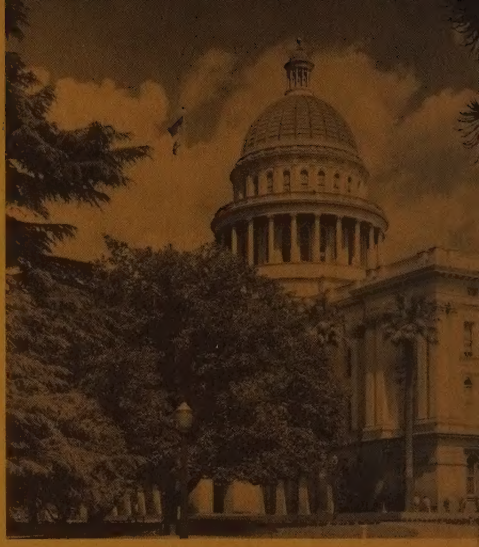
QUARTERLY BULLETIN

Volume XLVIII Number 2

Official Journal of the Department of Agriculture, State of California

W. C. JACOBSEN, *Director*

MERLE HUSSONG, *Editor*
ROBERT H. ANDERSON, *Desk Editor*
CLIFFORD CLOWER, *Photographer*



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The *Quarterly Bulletin*, published as a contribution to the welfare of California Agriculture, is mailed free to California citizens interested in the work of the Department of Agriculture. The *Bulletin* is exchanged, on request, for publications of the Federal Government, Experiment Stations, and other state or national agricultural offices or organizations.
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THE HONORABLE EDMUND G. BROWN, Governor of California

DIVISION OF ADMINISTRATION

Report of the Director

W. C. JACOBSEN, *Director of Agriculture*

Crop prospects for the year appeared rather dim when heavy spring rainfall materially inhibited fruit set, delayed cultural work, and prevented early field planting. However, conditions improved, and a long growing season ended with a dry harvest period, permitting complete harvest of late crops. The result was that in 1958 the returns from products of the soil were high in total value in spite of a smaller volume of production. For the third consecutive year, the State's total cash farm income exceeded 2¾ billion dollars, and again will give California first place in the Nation in terms of farm production value. California has attained this top position for 24 out of the past 29 years.

It is our purpose in these remarks to report the progress made in several of the department's activities and to comment on several special problems.

In the administrative branch of the department, there was continued emphasis upon inservice training procedures, and, with obvious need for increased economy, plans were made for work simplification and improvement programs, in which the training group members of the department will be leaders. Some progress in this direction has already been attained, due to the zeal and application of these conscientious persons who have undertaken this work in addition to performing their regular duties.

There has been clarification of the department's responsibility in the field of civil defense. This clarification was accomplished through the assignment to the department by the State Disaster Office of the duties of food administration, with special reference to food storage and basic supply sources. Plans have been made to integrate the department's manpower in case of emergency on district, sector, and local levels. The assistance of county agricultural commissioners is vital to the department's success in this important civil defense program.

In the *Division of Animal Industry*, a new poultry diagnostic laboratory was constructed and occupied at Turlock's[1] to better meet the needs of the expanding poultry industry in the northern San Joaquin Valley, and to provide an intermediate focal point for poultry disease diagnosis. This new laboratory will aid in early disease detection in this area.

At the end of the year, the brucellosis suppression program, under the new authority granted by the 1957 Legislature, had expanded to 41 counties, with three additional counties designated modified certified brucellosis-free areas. Progress in this program has exceeded expectations, due to material support from owners of both dairy and beef herds. Control work is in progress in many of the major dairy counties of the State.

All counties in the State continued to maintain their status as modified tuberculosis-free areas, based upon regular tuberculin testing, which showed the incidence of infection to be under one-half of 1 percent. As a result of intensified efforts to suppress this disease, the total number of herds regarded as infected was reduced during the year from 133 to 78.

The program to eliminate all duplicate livestock brand recordings by January 1, 1959, recommended by the Joint Legislative Committee on Agricultural and Livestock Problems in 1947, terminated in accordance with the provisions of the Agricultural Code. In previous years, the same individual brand could be recorded to different owners in different districts of the State. Modern transportation and marketing methods have necessitated that a brand be recorded for only one owner on a statewide basis. At

[1] See *Quarterly Bulletin*, Vol. 48, No. 1, Jan., Feb., March, 1959.

the close of the year, approximately 30,000 brands were on record.

Every effort has been made to co-operate with federal and state public health authorities in periodic sampling of milk to determine the extent of radiological contamination. This sampling procedure has been integrated with that conducted on a nationwide basis by the U. S. Public Health Service, and will be continued as long as a potential hazard exists in this area.

The *Division of Plant Industry* was confronted with several important problems. One was to keep California's number one crop, cotton, free from the cotton boll weevil and the pink bollworm. The threat to the State's cotton industry represented by these major pests was increased by the discovery of extensive pink bollworm infestations in the western part of Maricopa County, Arizona.

Steps taken to protect California's cotton plantings from the threat of invasion by these insects included intensification of pest detection inspections, especially a tightening of plant quarantine inspection work, and the alerting of all California cotton growers and processors to the importance of reporting all discoveries of new insects in their crops. It is vital to the welfare of our cotton industry that any incipient infestation of either of these pests be found at the earliest possible moment, so that action may be taken to accomplish eradication before either becomes established in this State, as they are in the leading cotton producing states of the South.

We look hopefully toward an intensification of interest on the part of Arizona producers in their insistence upon eradication of pink bollworm from the cotton plantings in that state. Without such eradication, California will continue to be threatened with infestation from relatively near sources, and even from natural flight of the pink bollworm moth. A special Committee of the States, under the auspices of the National Association of State Departments of Agriculture, has undertaken to review the pink bollworm problem, and to gain support for an eradication effort in those states with limited infestation.

There has been a general intensification of pest detection inspections through wider distribution of traps, in order to intercept, at the earliest possible moment, any of the more hazardous pests not yet established in this State, including the Mediterranean fruit fly, the Mexican fruit fly, the melon fly, the Oriental fruit fly, Japanese beetle, imported fire ant, witchweed[2] and white-fringed beetle. Intensive field inspections are under way to find soybean cyst nematode, the previously noted cotton pests, and other major weed, insect, and disease pests not yet found within our borders. The work of the county agricultural commissioners in this activity has been invaluable, and there is greater support for developing this function with the assistance of the agricultural industry in the major counties.

Surveys to locate remaining infestations of Khapra beetle have been intensified in co-operation with the Federal Government and the counties. As must be anticipated with an insect of this type, occasional new infestations will be found, but it is believed that another year of effort against this most important grain storage pest will bring eradication.

A new infestation of citrus white fly appeared in Sacramento, and was subjected to the characteristic eradication treatment. This is the only new area showing recurrence of the pest after several years following effective cleanup.

As is to be anticipated, some of these pests will be reintroduced, but application of valid techniques, based on previous experience, cease to make such recurrences frightening.

The department's clean grain program has progressed more satisfactorily than was anticipated, and has brought a resurgence in greater weed control effort. Weed control conferences continued to hold the interest of farm operators, research staff members, pesticide manufacturers, and regulatory officials. A voluntary group associated with the California State Chamber of Commerce has asked for improved legislation to aid in further simplifying the legal processes advantageous to weed cleanup.

The fact that California is perhaps the greatest user of pesticides handled by, or under the supervision of, competent and well-informed people unquestionably has been responsible for saving California from the intense criticism of pesticidal application appearing in other parts of the United States. The staffs of county directors of Agricultural Extension and of the county

[2] See *Quarterly Bulletin*, Vol. 46, No. 3, July, Aug., Sept., 1957.

agricultural commissioners have been very judicious in their recommendations, particularly emphasizing precautions in handling hazardous materials. As an outgrowth of the general wave of criticism against pesticides, there has been a rekindling of opposition by a small group against the use of certain field rodenticides. These critics fail to give credit to the agricultural regulatory services of California for having thrown greater safeguards around the use of pest control materials than are found in any other state in the Nation.

The predatory animal control problem shows signs of meriting more particular attention because of the general reduction in activity by commercial fur trappers, due to very low prices paid for pelts, and the growing concept among conservationists that predator control is of lessening importance in protection against wildlife depredations. Both of these factors have added to the problem of those responsible for preventing losses to livestock, poultry, and crops from predatory mammals. Currently, the effort has not diminished on the part of those responsible for this latter phase of protection, but these agencies are bearing almost the full load of the entire program. Under such circumstances, unless some way to augment manpower is found, there is bound to be an increase in the predatory animal population, with a consequent possibility that diseases reservoired in these animals, and transmissible to humans, may become more common.

In the *Division of Marketing*, there is evidence that there might be greater use made of services within this branch directed to marketing orders for lettuce, trade promotion for Brussels sprouts, development of improved techniques to meet the requirements of food and drug agencies that no deleterious substances find their way into marketable wines, and more intensive application of the protective laws administered by the Bureau of Market Enforcement.

Recognition must be given to the fact that the system of marketing livestock is being decentralized, requiring an adjustment in the development of daily market news information for this segment of reporting. Expansion of the country sales has led to more complete informational service from auction yards. Discontinuance of the Market News Service Office in South San Francisco is indicated. It is no longer an important price-recording market. Manpower and equipment from the South San Francisco office could be properly transferred to a new livestock auction facility opening at Red Bluff, serving a larger area in Northern California and parts of southern Oregon and northwestern Nevada.

The vagaries of nature in 1958 were somewhat upsetting to the crop estimators in the Bureau of Agricultural Statistics, in spite of their zealous efforts for accuracy. This happened in both peaches and grapes during the 1958 season. In recent years, efforts have been made to adapt objective sampling techniques to supplement the results tabulated from the reports of voluntary reporters. The objective sampling device has been used on cling peaches and pears, and is in prospect for use on lemons and walnuts. It may be necessary to augment the presently foreseeable techniques with the services of a small staff of trained estimators mobile enough to check on field conditions, to detect errors and oversights, and to counteract biases.

Recognition must be given to the trend for gaining improved local statistical information and the need to develop resulting compilations therefrom on a more uniform basis than has been possible heretofore. It is realized that there is a statutory responsibility for the county agricultural commissioners to assemble and report information on acreage, production and value for their jurisdictions. It is our view that this can become a far more valuable adjunct within the statistics compilation picture after better correlation with the federal-state techniques in preparing annual statistical summaries, thereby to offset any appreciable variances in local and statewide totals. In accomplishing improved statistical performance data, we are not unmindful that some additional financing may be necessary.

Co-operation. In our effort to fulfill the duty of protecting and promoting the agricultural industry of this State, we are duly appreciative of the excellent assistance received from the county officers who are associated with the department in its regulatory and service activities. We have had excellent advisory help from the State Board of Agriculture, from the farm organizations, the University of California, other state departments, and the Federal Government. To these persons and agencies, we express our thanks.

Departmental Personnel Office

CHARLES P. CUSICK, *Personnel Officer*
FRANCIS G. STOFFELS, *Assistant Personnel Officer*

The Personnel Office administers the personnel program for the department and maintains employee records. Of 247 California civil service job classifications used by this department, 190 are used exclusively by the Department of Agriculture.

The number of permanent and seasonal employees fluctuates during the year. In March, 1958, there were 1,588 employees, and in August, 1958, there were 2,248 employees. Approximately 1,500 of these employees were permanent. The others were employed on a seasonal basis.

The Personnel Office studies job classifications, makes salary surveys, investigates cases requiring disciplinary action, handles a variety of personnel transactions, and assists with the departmental training program.

The Personnel Office, in co-operation with and for California counties, examines applicants and certifies the names of persons found eligible for appointment as county agricultural commissioners, deputy agricultural commissioners, county sealers of weights and measures, deputy county sealers, county agricultural inspectors, and seasonal county agricultural inspectors.

SPECIAL FUNCTIONS

Inservice Training

During the year, 178 supervisory employees completed a three-day training course in human relations. The course was given in Fresno, Los Angeles, Sacramento and San Francisco by the Departmental Training Co-ordinators.

Group of administrators and training co-ordinators who completed a course in Human Relations in Supervision on March 6, 1958. The course was given by Dr. Arthur Sherman, Jr., of the Sacramento State College staff, and certificates of completion were presented by Director W. C. Jacobsen.
In front row, third from left is Director Jacobsen, fourth from left is Dr. Sherman, and fifth from left is Dr. Arthur G. Boyd, Assistant Director, Chairman of the Departmental In-Service Training Advisory Committee.

In 1958, the following subjects were considered at meetings of the Bureau Chiefs' Conference: data processing, press relations, qualifications appraisal board procedures, budget matters, changes in land utilization, and water problems as applied to agriculture.

Courses in accounting and personnel office matters were given to bureau fiscal and personnel clerks. A personnel procedures manual was prepared for use by bureau personnel clerks and was used in training.

Personnel Office staff members assisted 13 bureaus and offices in planning 21 formal training courses during the year.

CLASSIFICATION

Ten specifications of state civil service classifications used exclusively by this department were revised in 1958. In addition, four new classes were established for the use of this department.

EXAMINATIONS

The following table shows the results of examinations given by the department during 1958, to qualify persons for employment in county agricultural departments and county departments of weights and measures:

Title of examination	*Number of candidates*	*Successful*	*Unsuccessful*
County agricultural commissioner Deputy agricultural commissioner	110	61	49
County sealer of weights and measures Deputy sealer of weights and measures	113	58	55
County agricultural inspector	535	246	289
Seasonal county agricultural inspector	42	34	8
	800	399	401

Departmental Accounting Office

C. H. PERKINS, *Fiscal Officer*
MARIE GALLAGHER, *Assistant Fiscal Officer*

The Accounting Office administers the financial and business affairs of the department. Included are such items as budget preparation and control, automotive management, property inventory controls, internal audit, and building management.

Fiscal controls involve operation in connection with eight different funds. Included is the Department of Agriculture Fund, from which operate the various self-supporting functions of the department. Although this fund is accounted through the regular fiscal control agencies as one fund, it requires the keeping of 20 subaccounts in order that the funds for each individual self-supporting function may be earmarked for their particular use.

Another fund peculiar to the department is the "Department of Agriculture Building Fund." This fund was established by Chapter II, Statutes of 1950, for the purpose of providing a method for investing surplus money in the Department of Agriculture Fund by using these moneys to construct a building for use of the department. The Accounting Office is responsible for the operation of the building, and is concerned with the collection of the monthly rentals, and repayment of the principal amount borrowed, together with interest earned on moneys invested.

An accounting function peculiar to this department is the Marketing Trust accounting, which involves collection and disbursement of about $8,000,000 annually on behalf of industry self-help marketing programs. These funds are exempt from usual state controls, such as Controller's audit, Board of Control Rules, and the usual budget procedures.

Automotive management involves the department's fleet of 477 passenger cars and 72 trucks and pickups. These vehicles represent those required at remote locations not serviced by the State Pool. Total mileage driven by the department in 1957 was 11,098,344, including 1,892,000 miles of State Pool car use.

The balance of the regular activities of the Accounting Office covers the usual business functions necessary in the operation of a large department, and consists of the handling of leases, contracts, purchases of supplies and equipment, and control of the property and equipment owned by the various functions. The Accounting Office also acts as the co-ordinating unit in the department insofar as contacts with the other fiscal control agencies are concerned.

Following is a financial statement detailing appropriations, revenue and expenditures for the various funds administered by the department.

FINANCIAL STATEMENT

Expenditures for the Fiscal Year July 1, 1957-June 30, 1958

GENERAL FUND FUNCTIONS	*Detail*	*Subtotals*	*Totals*
ADMINISTRATION		$544,953.54	$544,953.54
Administration	$508,665.42		
Office Service Unit	36,288.12		
DIVISION OF PLANT INDUSTRY			2,824,042.37
Administration		19,040.14	
Bureau of Entomology		830,211.49	
General Entomology	326,779.09		
Destruction and Control of Beet Leafhoppers and Host Plants	222,623.17		
Hall Scale Eradication	28,086.54		
Mexican Fruit Fly Survey and Treatment	77,570.78		
Khapra Beetle Suppression	138,294.45		
Melon Fly Survey and Treatment	36,857.46		
Bureau of Plant Quarantine		1,254,407.46	
Bureau of Plant Pathology		210,024.53	
Plant Pathology	161,077.98		
Quick Decline of Citrus	48,946.55		
Bureau of Rodent and Weed Control and Seed Inspection		456,403.89	
Rodent and Weed Control	130,742.63		
Seed Inspection	117,280.34		
Predatory Animal Control	208,380.92		
Bureau of Chemistry		53,954.86	
Spray Residue and Injurious Materials Enforcement	53,954.86		
DIVISION OF ANIMAL INDUSTRY			2,995,615.12
Administration		19,907.73	
Bureau of Livestock Disease Control		1,547,130.89	
Field Services	1,170,447.74		
Livestock and Poultry Pathology Laboratories:			
Petaluma	69,584.78		
San Gabriel	78,095.19		
Fresno	80,224.60		
Sacramento	79,130.83		
Poultry Pathology Laboratories:			
Turlock	43,543.76		
Lancaster	26,103.99		
Bureau of Dairy Service		178,022.36	
Bureau of Meat Inspection		952,801.98	
Bureau of Poultry Inspection		297,752.16	
DIVISION OF MARKETING			1,290,492.09
Administration		19,758.60	
Bureau of Markets		254,911.26	
General Marketing Service	254,911.26		
Bureau of Market News		573,908.39	
Supervisory and Field	315,455.49		
Fruit and Vegetable Reporting	111,012.57		
Hay and Grain Reporting	60,138.71		
Livestock, Meat and Wool Reporting	53,564.18		
Dairy and Poultry Products Reporting	33,737.44		
Bureau of Agricultural Statistics		71,282.95	
Bureau of Fruit and Vegetable Standardization		271,063.92	
Fruit and Vegetable Standardization	216,339.83		
Poultry Meat Standardization	54,724.09		
Bureau of Weights and Measures		99,566.97	
Subtotal—support			$7,655,103.12
LESS GENERAL FUND REIMBURSEMENTS			672,594.51
Unscheduled Reimbursements:		1,153.57	
Departmental Administration	11.83		
Bureau of Entomology	407.73		
Bureau of Plant Quarantine	1.95		
Bureau of Rodent and Weed Control and Seed Inspection	101.60		
Bureau of Livestock Disease Control	334.60		
Bureau of Meat Inspection	11.28		
Bureau of Poultry Inspection	1.20		
Bureau of Markets	33.30		
Bureau of Market News	143.11		
Bureau of Fruit and Vegetable Standardization	82.93		
Bureau of Weights and Measures	24.04		
Appropriation Reimbursements:		671,440.94	
Departmental Administration	241,445.00		
Office Service Unit	32,735.00		
Central Supply	10,284.94		
General Entomology	5,000.00		
Bureau of Plant Quarantine	4,796.95		
Bureau of Rodent and Weed Control and Seed Inspection	30,562.86		
Bureau of Livestock Disease Control	52,716.45		
Bureau of Meat Inspection	68,976.02		
Bureau of Markets	202,785.47		
Bureau of Market News	15,350.00		
Bureau of Fruit and Vegetable Standardization	6,788.25		
Total—support			$6,982,508.61

Expenditures for the Fiscal Year July 1, 1957-June 30, 1958—Continued

GENERAL FUND FUNCTIONS	Detail	Subtotals	Totals
OTHER CURRENT EXPENSES			318,223.30
Federal Co-operative Marketing Research		57,550.37	
Salaries of County Agricultural Commissioners		146,977.06	
Bovine Brucellosis Control		113,695.87	
Total—General Fund functions			* $7,300,731.91

*Includes accounts payable, $229,358.98, and accounts receivable, $102,634.52.

DEPARTMENT OF AGRICULTURE FUND FUNCTIONS	Detail	Subtotals	Totals
DIVISION OF PLANT INDUSTRY			$1,091,227.42
Bureau of Plant Quarantine		$137,503.54	
Nursery Service	$137,503.54		
Bureau of Field Crops		515,967.54	
Bureau of Chemistry		399,418.42	
Chemistry †	373,288.72		
Agricultural Pest Control Operators	26,129.70		
Bureau of Rodent and Weed Control and Seed Inspection		38,337.92	
Seed Testing and Certification Service	38,337.92		
DIVISION OF ANIMAL INDUSTRY			919,018.53
Bureau of Dairy Service		181,826.32	
Bureau of Livestock Identification		737,192.21	
DIVISION OF MARKETING			4,061,734.58
Bureau of Markets		11,651.46	
Agricultural Producers Marketing Act	11,651.46		
Bureau of Market Enforcement		297,495.24	
Bureau of Milk Control		1,018,911.87	
Bureau of Fruit and Vegetable Standardization		820,492.69	
Canning Tomato Inspection	768,897.27		
Seed Potato Certification	51,595.42		
Bureau of Shipping Point Inspection		1,662,343.12	
Bureau of Weights and Measures		250,840.20	
Gasoline, Distillate and Oil Inspection and Antifreeze and Brake Fluid Registration	167,485.63		
Public Weighmasters	83,354.57		
Subtotal—support			$6,071,980.53

Economic poisons, $74,657.74; fertilizing materials, $298,630.98.

LESS DEPARTMENT OF AGRICULTURE FUND REIMBURSEMENTS			7,449.85
Unscheduled Reimbursements:		1,180.58	
Bureau of Field Crops	199.83		
Bureau of Chemistry	103.48		
Bureau of Livestock Identification	203.58		
Bureau of Market Enforcement	51.50		
Bureau of Milk Control	278.65		
Canning Tomato Inspection	120.69		
Bureau of Shipping Point Inspection	220.91		
Gasoline, Distillate and Oil Inspection and Antifreeze and Brake Fluid Registration	1.94		
Appropriation Reimbursements:		6,269.27	
Bureau of Livestock Identification	4,728.49		
Bureau of Milk Control	1,540.78		
Total—support			* $6,064,530.68

*Includes accounts payable, $226,953.24, and accounts receivable, $1,502.71.

CAPITAL OUTLAY			
CAPITAL OUTLAY AND SAVINGS FUND	Detail	Subtotals	Totals
Major Construction, Improvements and Equipment			$96,607.46
Bureau of Plant Quarantine		$43,241.10	
Benton Station	$43,241.10		
Bureau of Fruit and Vegetable Standardization		51,150.00	
Carpinteria Station	51,150.00		
Bureau of Livestock Disease Control		2,216.36	
Petaluma Laboratory	880.54		
Fresno Laboratory	1,335.82		
Minor Construction, Improvements, Repairs and Equipment			164.12
Departmental Administration		164.12	
Sacramento	164.12		
Acquisition and Development of Real Property			993.51
Bureau of Plant Quarantine		427.50	
Benton Station	418.90		
Blythe Station	8.60		
Bureau of Fruit and Vegetable Standardization		566.01	
Carpinteria Station	556.01		
Subtotal—Capital Outlay and Savings Fund			$97,765.09

Expenditures for the Fiscal Year July 1, 1957-June 30, 1958—Continued

CAPITAL OUTLAY—Continued

FAIRS AND EXPOSITION FUND	*Detail*	*Subtotals*	*Totals*
Major Construction, Improvements and Equipment			41,950.00
Bureau of Livestock Disease Control		41,950.00	
Turlock Laboratory	41,950.00		
Subtotal—Fairs and Exposition Fund			$41,950.00
Total—Capital Outlay			$139,715.09

Revenue for the Fiscal Year July 1, 1957 to June 30, 1958

GENERAL FUND

GENERAL FUND FUNCTIONS

DEPARTMENTAL ADMINISTRATION	*Detail*	*Subtotals*	*Totals*
Miscellaneous income	$207.70	$207.70	$207.70
DIVISION OF PLANT INDUSTRY			217.94
Bureau of Entomology		80.50	
Apiary brand registration fees	75.50		
Miscellaneous income	5.00		
Bureau of Plant Quarantine		134.04	
Miscellaneous income	134.04		
Bureau of Rodent and Weed Control		3.40	
Miscellaneous income	3.40		
DIVISION OF ANIMAL INDUSTRY			100,208.61
Bureau of Meat Inspection		9,843.80	
Foreign cold storage meat inspection licenses	3,388.68		
Foreign cold storage meat inspection fees	6,455.12		
Bureau of Dairy Service		55,194.61	
Container brand renewal fees	40.00		
Container brand registration fees	170.00		
Factory licenses miscellaneous	10,496.00		
Factory licenses miscellaneous penalties	43.50		
Oleomargarine licenses—bakery and restaurant	3,124.00		
Oleomargarine licenses—manufacturers	1,200.00		
Oleomargarine licenses—wholesale	10,000.00		
Imitation milk licenses—manufacturers	200.00		
Imitation milk licenses—retail	925.00		
Imitation milk licenses—bakery and restaurant	16.00		
Imitation milk licenses—wholesale	850.00		
Imitation cream licenses—manufacturers	200.00		
Imitation cream licenses—retail	60.00		
Imitation cream licenses—bakery and restaurant	90.00		
Imitation cream licenses—wholesale	2,800.00		
Imitation ice cream licenses—manufacturers	900.00		
Imitation ice cream licenses—retail	13,915.00		
Imitation ice cream licenses—bakery and restaurant	8.00		
Imitation ice cream licenses—wholesale	3,100.00		
Samplers and weighers licenses	2,056.00		
Samplers and weighers licenses penalties	27.00		
Pasteurizers licenses	2,480.00		
Pasteurizers licenses penalties	36.00		
Testers licenses	973.00		
Testers licenses penalties	8.00		
Technicians licenses	143.00		
Technicians licenses penalties	1.00		
Modified milk licenses	900.00		
Miscellaneous income	401.91		
Sale of equipment	31.20		
Bureau of Livestock Disease Control		6,345.20	
Vesicular exanthema licenses	6,040.00		
Vesicular exanthema licenses penalties	220.00		
Miscellaneous income	85.20		
Bureau of Poultry Inspection		28,825.00	
Poultry meat inspectors application fees	2,190.00		
Poultry plant licenses	21,880.00		
Miscellaneous income	75.00		
Inspectors license renewal fees	3,905.00		
Inspectors license penalty fees	775.00		
DIVISION OF MARKETING			14.15
Bureau of Fruit and Vegetable Standardization		11.00	
Sale of equipment	11.00		
Bureau of Weights and Measures		3.15	
Miscellaneous income	3.15		
Total—General Fund Revenue			$100,648.40

OTHER FUNDS	Detail	Total
DEPARTMENT OF AGRICULTURE TRUST ACCOUNT		$197,925.84
Dairy trust	$183,425.84	
California crop improvement	8,500.00	
Walnut crop survey	6,000.00	
STATE DAIRY PRODUCTS TRUST FUND		483,515.56
Fees	479,721.60	
Interest and penalties	252.31	
Sale of books and pamphlets	2,569.03	
Sale of records	803.62	
Miscellaneous income	169.00	
DEPARTMENT OF AGRICULTURE BUILDING FUND		177,161.52
Rental income	177,138.22	
Miscellaneous income	23.30	

DEPARTMENT OF AGRICULTURE FUND	Detail	Subtotal	Subtotals by bureaus	Total
DIVISION OF PLANT INDUSTRY				$1,046,539.29
Bureau of Plant Quarantine			$133,103.36	
Nursery service		$133,103.36		
Nursery service licenses	$107,715.00			
Restoration fees	1,332.50			
Acreage fees	2,749.05			
Psorosis registry fees	17.50			
Strawberry certification fees	15,088.15			
Miscellaneous income	1,005.41			
Interest from Department of Agriculture Building Fund	1,428.96			
Grapevine registration fees	1,250.00			
Cherry registration fees	460.00			
Interest from Surplus Money Investment Fund	2,091.79			
Bureau of Field Crops			513,698.47	
Field crops inspection		298,493.65		
Inspection fees	296,112.86			
Miscellaneous income	92.42			
Interest from Department of Agriculture Building Fund	941.31			
Interest from Surplus Money Investment Fund	1,347.06			
Warehouse inspection		551.04		
Warehouse inspection fees	480.00			
Interest from Department of Agriculture Building Fund	29.90			
Interest from Surplus Money Investment Fund	41.14			
Grain warehouse inspection		2,345.11		
Registration fees	2,330.00			
Interest from Department of Agriculture Building Fund	6.81			
Interest from Surplus Money Investment Fund	8.30			
Commercial feeding stuffs service		211,845.51		
Feeding stuffs licenses	14,485.00			
Feeding stuffs licenses penalties	540.00			
Feeding stuffs tonnage tax	182,744.42			
Tonnage tax penalties	1,248.15			
Miscellaneous income	62.70			
Interest from Department of Agriculture Building Fund	738.64			
Livestock remedy registration	3,500.00			
Hazardous remedy fee	7,485.00			
Interest from Surplus Money Investment Fund	1,041.60			
Terminal weighing service		463.16		
Inspection fees	458.62			
Interest from Department of Agriculture Building Fund	1.58			
Interest from Surplus Money Investment Fund	2.96			
Bureau of Chemistry			357,579.21	
Economic Poisons Service		90,367.12		
Economic poisons licenses	61,500.00			
Economic poisons licenses penalties	463.35			
Economic poisons analysis fees	171.60			
Limited use sales licenses	3,405.00			
Limited use sales licenses—penalties	40.05			

	Detail	Subtotal	Subtotals by bureaus	Total
DIVISION OF PLANT INDUSTRY—Continued				
Supplemental brand fees	22,809.00			
Miscellaneous collections	812.61			
Spray residue analysis fees	6.00			
Interest from Department of Agriculture Building Fund	450.38			
Interest from Surplus Money Investment Fund	709.13			
Fertilizing Materials Service		232,237.41		
Fertilizer licenses	21,300.00			
Fertilizer licenses penalties	97.50			
Fertilizer salesmen's licenses	5,362.00			
Fertilizer salesmen's licenses penalties	258.00			
Agricultural mineral licenses	9,250.00			
Agricultural mineral licenses penalties	32.50			
Jobbers licenses	325.00			
Agricultural mineral tonnage tax	23,261.98			
Agricultural mineral tonnage tax penalties	81.08			
Fertilizer tonnage tax	165,860.37			
Fertilizer tonnage tax penalties	478.29			
Cancelled warrants	42.28			
Interest from Department of Agriculture Building Fund	2,388.93			
Interest from Surplus Money Investment Fund	3,190.86			
Miscellaneous collections	308.62			
Pest control operators		34,974.68		
Operators' licenses	27,685.00			
Operators' licenses penalties	475.00			
Pilots' certificates	6,635.00			
Miscellaneous collections	35.00			
Interest from Department of Agriculture Building Fund	43.63			
Interest from Surplus Money Investment Fund	101.05			
Bureau of Rodent and Weed Control and Seed Inspection			42,158.25	
Seed testing and certification		42,158.25		
Seed testing fees	42,063.00			
Interest from Department of Agriculture Building Fund	31.82			
Interest from Surplus Money Investment Fund	63.43			
DIVISION OF ANIMAL INDUSTRY				891,050.28
Bureau of Dairy Service			191,460.27	
Miscellaneous collections	1,663.75	1,663.75		
Interest from Department of Agriculture Building Fund	570.52	570.52		
Interest from Surplus Money Investment Fund	1,026.31	1,026.31		
Ice cream inspection		85,007.38		
Ice cream factory licenses	84,487.00			
Ice cream factory licenses penalties	520.38			
Butter grading service		19,020.90		
Butters graders' licenses	68.00			
Butter distributors' fees	44.62			
Butter distributors' fees penalties	9.00			
Butter cutting and wrapping fees	18,897.28			
Butter cutting and wrapping fees penalties	2.00			
Market milk inspection		80,459.40		
Producers and distributors inspection fees	80,205.02			
Producers and distributors inspection fees penalties	254.38			
Bureau of Dairy Service				
Glassware Testing Service		3,712.01		
Glassware Testing Fees	3,712.01			
Bureau of Livestock Identification			699,590.01	
Miscellaneous collections	166.40	166.40		
Cancelled warrants	14.00	14.00		
Proceeds from estray animals	7,455.35	7,455.35		
Sale of brand books	114.00	114.00		
Interest from Department of Agriculture Building Fund	3,317.93	3,317.93		
Interest from Surplus Money Investment Fund	4,668.33	4,668.33		

DIVISION OF ANIMAL INDUSTRY—Continued	Detail	Subtotal	Subtotals by bureaus	Total
Cattle protection service		682,840.00		
Hide and brand inspection fees	601,399.50			
Brand recording fees	4,268.00			
Brand reinstatement fees	3,612.00			
Brand renewal fees 1 year	43,616.00			
Brand renewal fees multiple years	6,678.00			
Duplicate certificate fees	12.00			
Brand transfer fees	1,138.00			
Slaughterers licenses	14,510.00			
Slaughterers licenses penalties	—4.50			
Public cattle sales yard licenses	6,800.00			
Penalties for use of unrecorded brands	811.00			
Horse and sheep protection		1,014.00		
Horse transportation licenses	123.00			
Slaughterers licenses	655.00			
Slaughterers licenses penalties	236.00			
DIVISION OF MARKETING				4,131,927.44
Bureau of Markets			12,786.05	
Agricultural producers marketing act		12,786.05		
Commission allowance prorate fees	10,818.34			
Preliminary deposit—Brussel sprouts	1,247.50			
Interest from Department of Agriculture Building Fund	291.20			
Interest from Surplus Money Investment Fund	429.01			
Bureau of Market Enforcement			254,169.04	
Miscellaneous collections	47.50	47.50		
Civil penalties	90.00	90.00		
Interest from Department of Agriculture Building Fund	1,922.84	1,922.84		
Interest from Surplus Money Investment Fund	2,671.70	2,671.70		
Produce dealers service		219,874.00		
Produce dealers licenses	146,600.00			
Produce dealers license penalties	1,810.00			
Brokers licenses	14,640.00			
Commission merchants licenses	14,400.00			
Agents licenses	11,095.00			
Cash buyers licenses	29,760.00			
Miscellaneous	1,569.00			
Processors of farm products		29,563.00		
Processors licenses	24,560.00			
Processors license penalties	170.00			
Agents licenses	4,530.00			
Statement of intention to finance fees	218.00			
Miscellaneous	85.00			
Bureau of Milk Control			1,159,356.29	
Miscellaneous	69.80	69.80		
Interest from Surplus Money Investment Fund	4,988.82	4,988.82		
Interest from Department of Agriculture Building Fund	3,378.29	3,378.29		
Fluid milk and cream stabilization		841,936.20		
Distributor and producer assessments	824,779.30			
Distributors licenses	5,385.00			
Distributors license penalties	219.00			
Civil penalties	11,504.00			
Miscellaneous	48.90			
Marketing milk and other dairy products		153,921.59		
Ice cream manufacturer assessments	153,421.59			
Civil penalties	500.00			
Fluid milk and cream sales stimulation		155,061.59		
San Diego marketing area	59,013.36			
Interest from Surplus Money Investment Fund	191.39			
Interest from Department of Agriculture Building Fund	62.06			
Sacramento marketing area	26,325.34			
Interest from Surplus Money Investment Fund	140.72			

Revenue for the Fiscal Year July 1, 1957 to June 30, 1958—Continued

DIVISION OF MARKETING—Continued	Detail	Subtotal	Subtotals by bureaus	Total
Interest from Department of Agriculture Building Fund	31.59			
Alameda-Contra Costa marketing area	68,966.01			
Interest from Surplus Money Investment Fund	238.65			
Interest from Department of Agriculture Building Fund	92.47			
Bureau of Fruit and Vegetable Standardization			690,573.85	
Canning tomato inspection		629,393.65		
Inspection fees	624,263.70			
Miscellaneous	4.71			
Interest from Surplus Money Investment Fund	2,435.76			
Interest from Department of Agriculture Building Fund	2,049.02			
Cancelled warrants	640.46			
Seed potato certification		61,180.20		
Test plot fees	2,820.00			
Certification fees	57,856.00			
Interest from Surplus Money Investment Fund	321.67			
Interest from Department of Agriculture Building Fund	182.53			
Bureau of Shipping Point Inspection		1,725,441.24	1,725,441.24	
Inspection fees	1,721,768.71			
Miscellaneous	10.00			
Interest from Surplus Money Investment Fund	2,177.97			
Interest from Department of Agriculture Building Fund	1,462.53			
Cancelled warrants	22.03			
Bureau of Weights and Measures			289,600.97	
Gasoline, distillate and oil inspection		197,079.95		
Motor fuel pump licenses	185,338.20			
Anti-freeze registration fees	3,075.00			
Anti-freeze registration fees penalties	30.00			
Brake fluid registration fees	4,750.00			
Brake fluid registration fee penalties	75.00			
Miscellaneous collections	36.45			
Interest from Surplus Money Investment Fund	2,299.30			
Interest from Department of Agriculture Building Fund	1,474.00			
Cancelled warrants	2.00			
Public weighmasters		92,521.02		
Weighmasters licenses	50,060.00			
Weighmasters licenses penalties	2,200.00			
Additional location	7,435.00			
Additional location penalties	220.00			
Deputy weighmasters licenses	30,880.00			
Deputy weighmasters licenses penalties	720.00			
Miscellaneous	126.65			
Interest from Surplus Money Investment Fund	542.80			
Interest from Department of Agriculture Building Fund	336.57			
TOTAL—DEPARTMENT OF AGRICULTURE FUND				$6,069,517.01

Department of Agriculture Building Fund for the Fiscal Year July 1, 1957 to June 30, 1958

	Amount
Balance forwarded from 1956-57 F. Y.	$6,133.25
Collections:	
Rental income	177,161.25
Less:	
Transfers to Architecture Revolving Fund	3,000.00
Expenditures	101,548.42
Balance as of June 30, 1958	$78,746.08

Appropriations From Fairs and Exposition Fund for the Fiscal Year July 1, 1957 to June 30, 1958

	Balance as of 6/30/57	Available	Less actual expenditures	Less accounts payable	Balance per budget report	Items in transit	Balance per Controller 6/30/58
Minor construction, improvements, repairs and equipment, Ch. 1/56, Item 292	$32.61				$32.61		$32.61
Construction and equipment, E.O. D-55-84, Ch. 777/55, Item 399	13,220.00				13,220.00		13,220.00
Major construction, improvements and equipment, E.O. D-58-26, augmenting Ch. 1-56, Item 292.5		$41,950.00	$41,950.00				
Major construction, improvements and equipment, Ch. 777/55, Item 278.5	799.12				799.12		799.12 [1]
TOTALS	$14,051.73	$41,950.00	$41,950.00		$14,051.73		$14,051.73

[1] Appropriation account balance reverted by Controller.

Appropriations From General Fund for the Fiscal Year July 1, 1957 to June 30, 1958

CURRENT FISCAL YEAR APPROPRIATIONS

	Balance as of 6/30/57	Available	Less actual expenditures	Less accounts payable	Add accounts receivable	Balance per budget report	Items in transit	Balance per Controller 6/30/58
Support—Department of Agriculture, Ch. 600/57, Item 37, 1957-58 F.Y.		$7,624,600.00						
Augmented by								
Ch. 2298/57		68,249.00						
Ch. 2299/57		68,249.00						
E. O. 58-94		150,000.00						
		$7,911,098.00	$7,484,196.20	$171,800.58	$893.66	$255,994.88		
Reimbursements		—665,871.00	—572,930.28		99,664.23	+6,723.51		
		$7,245,227.00	$6,911,265.92	$171,800.58	$100,557.89	$262,718.39	+$93,502.31	$356,220.70 [1]
Federal Co-operative Marketing Research, Ch. 600/57, Item 38, 1957-58 F.Y.		$72,500.00	$56,413.85	$3,213.15	$2,076.63	$14,949.63	—$13,492.50	$1,457.13
Salaries of county agricultural commissioners, Ch. 600/57, Item 441, 1957-58 F.Y.		147,620.00	108,616.06	38,361.00		642.94	+42,111.00	42,753.94
Bovine Brucellosis Control, Ch. 2310/57, 1957-58 F.Y.		320,000.00	97,711.62	15,984.25		206,304.13	+24,829.12	231,133.25
Market News Service, Klamath Basin, Ch. 1473/57, 1957-58 F.Y.		6,000.00				6,000.00		6,000.00

[1] Includes $68,249.00 not included in Item 37 on Controller's records.

Appropriations From General Fund for the Fiscal Year July 1, 1957 to June 30, 1958—Continued

PRIOR FISCAL YEAR APPROPRIATIONS

	Balance as of 6/30/57	*Available*	*Add prior year accounts payable*	*Less prior year accounts receivable*	*Less actual prior year expenditures*	*Add actual prior year reimbursements*	*Items in transit*	*Balance per Controller 6/30/58*
Support—Department of Agriculture, Ch. 1/56, Item 41, 1956-57 F.Y.	—$87,134.94							
Augmented by E. O. 57-260		$182,050.00	$237,908.21	$87,499.48	$234,081.80	$87,900.66	—$63.03	$99,079.62
Federal Co-operative Marketing Research, Ch. 1/56, Item 42, 1956-57 F.Y.	9,384.04		2,945.49	4,861.64	3,150.77	4,615.53		8,932.65
Salaries, county agricultural commissioners, Ch. 1/56, Item 448, 1956-57 F.Y.	7.00		34,527.00		34,252.00		—275.00	7.00
Moving expense, Ch. 1/56, Item 44, 1956-57 F.Y.	522.78		700.00		479.22			743.56
Vesicular exanthema program, Ch. 1/56, Item 42, 1956-57 F.Y.	18,596.64							18,596.64
Support—Department of Agriculture, Ch. 777/55, Item 40, 1955-56 F.Y.	77,430.42				—150.73			77,581.15 [1]
Federal Co operative Marketing Research, Ch. 777/55, Item 41, 1955-56 F.Y.	2,821.93							2,821.93 [1]
Salaries, county agricultural commisioners, Ch. 777/55, Item 420, 1955-56 F.Y.	3,717.93							3,717.93 [1]
Refunds to reverted appropriations [2]								
Support—Department of Agriculture								
Ch. 62/43, 1944-45 F.Y.					—5.00			5.00
Ch. 486/47, 1947-48 F.Y.					—98.00			98.00
Ch. 23/48, 1948-49 F.Y.					—170.20			170.20
Ch. 700/49, 1949-50 F.Y.					—466.17			466.17
Ch. 2/50, Item 44, 1950-51 F.Y.					—331.80			331.80
Ch. 1020/51, Item 39, 1951-52 F.Y.					—353.40			353.40
Ch. 3/52, Item 41, 1952-53 F.Y.					—243.74			243.74
Ch. 971/53, Item 40, 1953-54 F.Y.					—320.03			320.03
Ch. 1/54, Item 39, 1954-55 F.Y.					—587.08			587.08

[1] Reverted in 1957-58 Fiscal Year.

[2] Unexpended appropriation balances reverted by Controller.

Appropriations From Department of Agriculture Fund for the Fiscal Year July 1, 1957 to June 30, 1958

CURRENT FISCAL YEAR APPROPRIATIONS

	Balance as of 6/30/57	Available	Less actual expenditures	Less accounts payable	Add accounts receivable	Balance per budget report	Items in transit	Balance per Controller 6/30/58
Support—Department of Agriculture Ch. 600/57, Item 39, 1957-58 F. Y.		6,130,418.00						
Augmented by Executive Orders:								
D57-93		131,143.00						
D57-110		239,003.00						
D58-80		14,090.00						
		6,514,654.00	5,845,758.48	226,953.24	731.19	442,673.47		
Reimbursements		—3,500.00	—6,678.33		771.52	+3,949.85		
TOTALS		$6,511,154.00	$5,839,080.15	$226,953.24	$1,502.71	$446,623.32	+$285,184.71	$731,808.03

PRIOR FISCAL YEAR APPROPRIATIONS

	Balance as of 6-30-57	Available	Add prior year accounts payable	Less prior year accounts receivable	Less actual prior year expenditures	Add actual prior year reimbursements	Items in transit	Balance per Controller 6-30-58
Support—Department of Agriculture, Ch. 1/56, Item 45, 1956-57 F. Y.	$329,239.54		$233,363.90	$2,735.36	$227,628.84	$505.08	—$7,769.61	$324,974.71
Support—Department of Agriculture, Ch. 777/55, Item 43, 1955-56	176,452.55				—216.86	105.20		176,774.61 [1]
Refunds to Reverted Appropriations, Support—Department of Agriculture, Ch. 1/54, Item 42, 1954-55 F. Y.					—4,719.57	6.60		4,726.17 [2]

[1] Reverted by Controller—Includes $87.50 reverted through "Refunds to Reverted Appropriations".
[2] Unexpended appropriation balance reverted by Controller.

Appropriations From Capital Outlay and Savings Fund for the Fiscal Year July 1, 1957 to June 30, 1958

	Balance as of 6/30/57	*Available*	*Less actual expenditures*	*Less accounts payable*	*Balance per budget report*	*Items in transit*	*Balance per Controller 6/30/58*
Major construction, improvements and equipment, Ch. 600/57, Item 285, 1957-58 F. Y., Carpinteria Inspection Station		$51,150.00	$51,150.00				
Minor construction, improvements, repairs and equipment, Ch. 600/57, Item 286, 1957-58 F. Y.		2,350.00	2,216.36		$133.64		$133.64
Acquisition of real property, Ch. 777/55, Item 277, 1955-56							
Bureau of Plant Quarantine—Benton Station	—$49.74		418.90		—468.64		—468.64
Bureau of Fruit and Vegetable Standardization —Carpinteria Station	3,619.54		566.01		3,053.53		3,053.53
Acquisition of real property, E.O. E57-305, Ch. 777/55, Item 399; Sec. 6/4, Ch. 600/57, 1957-58 F. Y.		7,000.00			7,000.00		7,000.00
Major construction, improvements, repairs and equipment, Ch. 777/55, Item 277.5, 1955-56 F. Y.	145,797.60		8.60		145,789.00		145,789.00
Major construction, improvements and equipment, Ch. 775/55, Item 278a, 1955-56 F. Y. Bureau of Plant Quarantine, Benton Station, employee housing	46,778.00		295.10	42,946.00	3,536.90	42,993.07	46,529.97
Minor construction, improvements, repairs and equipment, Ch. 1/56, Item 291, 1956-57 F. Y.— Departmental administration	430.38		164.12		266.26		266.26
TOTALS	$196,575.78	$60,500.00	$54,819.09	$42,946.00	$159,310.69	$42,993.07	$202,303.76

Statement of Revenue and Expenditures for the Fiscal Year July 1, 1957 to June 30, 1958

	Balance as of 6/30/57	Collections 1957-58	Collections 1958-59	Other items [1]	Expenditures 7/1/57 to 6/30/58	Expenditures Prior year expenditures	Trans. by Controller to State Employees Retirement Fund	Balance as of 6/30/58
DEPARTMENT OF AGRICULTURE FUND								
Nursery Service	$296,138.29	$67,024.64	$57,981.25	$1,873.47	$133,551.36	$2,332.06	$7,494.29	$279,639.94
Bonded Warehouse Inspection	6,239.83	512.28		42.24 —28.13[2]	948.10	5.35		5,812.77
Terminal Weighing Service	247.53	460.14		2.45	436.16	105.25	23.33	145.38
Grain Warehouse Inspection	158.44	2,339.64		6.77	2,281.08	—255.73	198.37	281.13
Field Crops Inspection	179,114.68	300,569.20		1,465.19	290,982.79	16,949.41	17,035.64	156,181.23
Commercial Feeding Stuffs Service	129,652.26	207,495.89		1,158.87	202,160.82	4,405.40	12,879.61	118,861.19
Seed Testing and Certification Service	4,467.51	42,105.44		34.87	34,907.27	4,991.07	2,659.24	4,050.24
Economic Poisons Service	77,025.12	70,321.38	21,294.00	525.25	73,231.82	1,413.11	4,910.17	89,610.65
Fertilizing Materials Service	456,001.38	223,972.43	7,650.00	3,521.98	292,940.04	5,652.14	19,640.73	372,912.88
Agricultural Pest Control Operators	8,420.16	34,861.47		81.17	25,305.31	588.87	1,599.94	15,868.68
Bureau of Dairy Service	120,343.97	190,375.41		790.97	140,719.74	3,222.39	9,617.56	157,950.66
Livestock Identification	686,834.72	695,120.38		9,058.34	718,407.35	15,576.22	47,364.31	609,665.56
Agricultural Producers Marketing Act	56,274.53	12,379.21		412.77	10,697.62	1,759.22	723.68	55,885.99
Bureau of Market Enforcement	387,500.22	251,650.77		3,140.40	290,357.83	5,048.41	16,787.74	330,097.41
Bureau of Milk Control	696,203.93	1,154,354.55		6,668.94				742,152.02
Milk Control					989,679.26	32,390.74	52,797.35	
Dairy Service					37,367.63	210.42	2,630.00	
Canning Tomato Inspection	424,645.31	626,971.83		3,249.72	760,159.62	7,891.01	10,149.01	276,667.22
Seed Potato Testing	27,200.46	60,917.13		202.94	50,298.98	865.10	3,388.18	33,768.27
Shipping Point Inspection	233,322.79	1,723,285.77		2,481.84	1,550,286.44	115,952.92	66,912.90	225,938.14
Gasoline, Distillate and Oil Inspection, Antifreeze and Brake Fluid Registration	328,798.90	78,583.10	122,750.10	1,838.88	164,336.29	1,805.39	9,900.06	355,929.24
Public Weighmasters	59,794.65	63,510.52	27,316.00	327.67	76,888.19	1,857.66	3,494.50	68,708.49
	4,178,384.68	5,806,811.18	236,991.35	36,856.60	5,845,943.70	222,766.41	290,206.61	3,900,127.09
Transfer to Department of Agriculture Building Fund, Ch. 11/50	—2,086,168.00							—2,086,168.00
	$2,092,216.68	$5,806,811.18	$236,991.35	$36,856.60	$5,845,943.70	$222,766.41	$290,206.61	$1,813,959.09

[1] See detail schedules for: 1956-57 Interest from Building Fund, $10,716.98; 1956-57 Surplus Money Interest, $18,872.54; Appropriation Reimbursements, $5,497.75; Unscheduled Reimbursements, $1,655.69; 1956-57 Reimbursements, $141.77.

[2] Loan Payment.

Statement of Revenue and Expenditures for the Fiscal Year July 1, 1957 to June 30, 1958—Continued

	Balance as of 6/30/57	Collections	Expenditures	Transfer to State Employees Retirement System	Balance as of 6/30/58
DEPARTMENT OF AGRICULTURE TRUST ACCOUNT					
BUREAU OF DAIRY SERVICE TRUST PROJECTS					
San Joaquin-Sacramento Valley Market Milk Distributors	$5,342.23	$6,074.00	$5,015.92	$230.46	$6,169.85
South San Joaquin Operators	7,282.13	31,449.77	24,902.17	1,923.72	11,906.01
Northern Counties			—1.98		1.98
Fresno County	648.39	2,995.45	3,360.76	271.20	11.88
Humboldt County and Del Norte County Operators	6,985.59	17,258.69	15,901.39	1,050.62	7,292.27
Coast Region Manufacturing Concerns	9,771.73	4,629.73	7,271.75	548.75	6,580.96
Sacramento Valley Operators	7,589.20	26,762.37	24,444.02	1,646.20	8,261.35
North San Joaquin Operators	11,800.10	64,216.47	62,602.63	4,636.24	8,777.70
San Francisco Bay Area Milk Dealers	1,374.83	7,659.00	6,472.04	202.14	2,359.65
Milk Dealers and Distributors in Southern California Area	4,008.92	8,251.50	6,423.11	235.46	5,601.85
Northern and Central California Milk Products Processors	5,380.08	3,100.00	3,624.48	318.06	4,537.54
Salinas-San Luis Obispo Operators	1,447.25	11,842.32	8,633.69	548.76	4,107.12
Crystal Cream and Butter Company	808.41	—813.46	—5.05		00
Subtotal	$62,438.86	$183,425.84	$168,644.93	$11,611.61	$65,608.16
BUREAU OF RODENT AND WEED CONTROL AND SEED INSPECTION					
California Crop Improvement Association	$737.69	$8,500.00	$7,473.50	$374.91	$1,389.28
BUREAU OF CHEMISTRY—SPRAY RESIDUE TRUST PROJECTS					
General Spray Residue Trust Project	$6,195.76		$712.14		$5,483.62
San Diego Spray Residue Trust Project	1,103.87				1,103.87
Los Angeles County Region Spray Residue Trust Project	876.29		131.46		744.83
Subtotal	$8,175.92		$843.60		$7,332.32
BUREAU OF AGRICULTURAL STATISTICS					
Walnut Crop Survey		$6,000.00			$6,000.00
GRAND TOTAL—DEPARTMENT OF AGRICULTURE TRUST ACCOUNT	$71,352.47	$197,925.84	$176,962.03	$11,986.52	$80,329.76

	Balance as of 6/30/57	Collections	Prior Year Revenue Adjustment	Current Year Expenditures: Advisory Board	Current Year Expenditures: Dept. of Agriculture	Prior Year Expenditures: Current Year	Prior Year Expenditures: Prior Year	Transfer to Employees' Retirement System	Balance as of 6/30/58
CALIFORNIA DAIRY INDUSTRY ADVISORY BOARD									
Section 746.3 Agricultural Code	$246,292.84	$483,260.27	$255.29	$437,035.28	$7,000.30	$14,380.42	$3,635.15	$4,219.47	$263,537.78

California Marketing Act and Agricultural Producers Marketing Act for the Fiscal Year July 1, 1957-June 30, 1958

	Balance as of June 30, 1957	Collections	Refunds	Distribution of pool sales proceeds	Agriculture Prorate Advisory Commission fees	Expenditures	Other items	Balance as of June 30, 1958
CALIFORNIA MARKETING ACT								
Fresh Bartlett Pears	$15,378.31	$32,987.58	$142.60			$33,011.47	[4]—$4.63 [5]371.22	$15,578.41
Canning and Freezing Cling Peaches Administration	47,910.88	2,744.90				12,783.91	[2]400.00 [3]—38,271.87	
Canning and Freezing Cling Peaches Advertising	197,233.56					27,021.94	[2]4,850.00 [3]—175,061.62	
Canning and Freezing Cling Peaches (Combined Order)		2,498,065.10	191,463.61			2,243,877.61	[1]—6,800.00 [7]7.18 [5]27,560.34 [5]213,333.49	296,817.89
Canning and Freezing Cling Peaches Surplus Diversion Stabilization Fund	1,038,699.10	2,747,795.17	3,786,494.09				[7]—.18	
Cling Peach Crop Survey	17,911.23	14,287.28	712.71			26,302.94	[1]—244.56	4,938.30
Dates	368.42					20.00		348.42
Substandard Date Pool	8.78							8.78
Wine	817,551.23	2,183,955.86	581.46			2,414,241.60	[2]300.00 [5]15,164.86	602,148.89
Grape Research Survey	24,632.00	27,266.65	8,733.35			24,289.66	[2]150.00	19,025.64
Grapefruit Advisory Board– Administration	9,254.78	34,625.53	2,552.87			28,221.14	[5]104.40	13,210.70
Advertising		14,322.65				9,126.56	[5]20.63	5,216.12
Fresh Fall and Winter Pears—Administration	2,499.92	6,844.17	17.03			5,672.05	[5]46.89	3,701.90
Sales Promotion	14,744.38	34,320.58	151.20			34,784.26	[4]—2.39 [5]355.38	14,482.49
Canning Fall and Winter Pears	5,086.77	23,826.87	6.04			21,205.26	[4]—406.51 [5]261.34	7,557.17
Dry Pack Lettuce	3,595.50	42,406.00	202.21			36,515.61	[5]236.56	9,520.24
Marketing Order for Figs Administration	17,971.44	47,816.86	46.94			46,331.37	[5]504.45	19,914.44
Advertising	8,714.77	20,386.26				19,783.76	[5]292.84	9,610.11
Substandard Fig Pool	11,875.16	55,178.31		$19,738.68		28,127.48	[1]— 900.00	18,287.31
California Canned and Green Olives	5,433.46					2,462.59	[5]54.07 [9]—67.76	2,957.18
Recovery of Money Due Growers		835.02					[10]67.76	902.78
Coachella Valley Green Corn	521.64					11.37		510.27
Prunes	169,294.80	555,948.14	779.37			624,913.16	[1]—1,500.00 [5]3,355.80	101,406.21

California Marketing Act and Agricultural Producers Marketing Act for the Fiscal Year July 1, 1957-June 30, 1958—Continued

	Balance as of June 30, 1957	Collections	Refunds	Distribution of pool sales proceeds	Agriculture Prorate Advisory Commission fees	Expenditures	Other items	Balance as of June 30, 1958
Early Apples	$236.43	$21,358.75				$17,999.71	[1]$109.23 [2]—50.00	$3,654.70
Wine Processors	632.14							632.14
Raisins	109,205.44	331,770.59	$394.05			374,180.02	[2]400.00 [3]2,008.94	68,810.90
Fresh Plums	13,643.78	34,512.57				37,342.48	[3]449.35	11,263.22
Grape Stabilization	1,481.64							1,481.64
Fresh Peaches	3,307.85	93,526.25	1.28			90,577.76	[3]623.78	6,878.84
Fresh Bartlett Pears—Sales Promotion	58,779.04	195,973.66	82.99			217,627.13	[4]—15.75 [3]1,262.74	38,289.57
Lima Beans	32,439.06	46,269.71	23.30			36,337.95	[3]634.58	42,982.10
Bedding Plants	325.87					9.75		316.12
Lemon Products	59,479.53					40,022.76	[2]50.00 [3]2,748.30	22,255.07
Lemon Cash Bond Stabilization Pool	43,191.72	2,037.79	197.31	$43,191.72				1,840.48
Lemon Pool Processing Charges		7,650.00				7,650.00		
Lemon Stabilization Pool Proceeds	108,763.46	132,645.55	3,369.63	236,014.15				2,025.23
Lemon Crop Survey	10,579.54	14,000.00	10,581.91			—3.36		14,000.99
Turkey Promotion	20,890.63	238,637.75	7.44			226,051.97	[3]705.60	34,174.57
Extracted Honey	10,280.94	39,332.25				32,605.07	[3]309.20	17,317.32
Winter Head Lettuce, Prior Seasons	39.90							39.90
Olive Stabilization, Prior Seasons	318.51			633.28		—314.77		
Long White Potatoes	324,150.43	680,321.45				831,147.14	[1]—25.00 [3]4,194.85	177,494.59
Delta White Potatoes	1,089.63	6,462.09	100.00			6,007.59	[3]43.59	1,487.72
Fresh Asparagus	31,790.65	27,564.35	143.49			4,987.20	[3]615.22	54,839.53
Processing Asparagus	31,929.74	42,819.59				10,541.26	[1]—25.00 [3]539.78	64,722.85
Bush Berries for Processing	8,408.91	39,956.32				42,177.11	[12]2,000.00 [3]111.65	8,299.77
Hardy Pear Promotion	10,943.59	13,560.73	13.98			14,128.52	[4]406.51 [3]369.41	11,137.74
California Strawberries	13,322.54	127,767.24	37.50			124,367.67	[1]—500.00 [3]667.00	16,851.61
Strawberry Crop Survey		2,000.00				561.02		1,438.98
Cantaloupes	14,725.55	40,700.47	318.26			36,587.08	[3]535.90	19,056.58
Cantaloupes Processors Performance Bond	1,000.00	1,000.00	2,000.00					
Poultry and Turkey Board as Amended Administration	24,286.46	54,127.62				55,393.67	[3]532.04	23,552.45

Field Services	8,100.58	99,122.08				102,656.69	[1]$150.00 [2]$174.00	4,889.97
Olive Stabilization 1957 Season	21,261.55	540.13	1,495.34			16,110.96	[12]—4,095.38 [1]—100.00 [1]—1,000.00	
California Canned Green and Ripe Olives		340,435.86	6,979.83			151,047.74	[13]4,095.38 [3]3,558.19	189,061.86
Winter Head Lettuce Preliminary Deposit	1,073.61		1,070.81			2.80		
Summer Lettuce Preliminary Deposit	750.00					290.60		459.40
Beef Council	14.96	90,836.13	115.75			33,090.09	[1]—25.00	57,620.25
Olallie Berries Preliminary Deposit		950.00				568.77		381.23
Proceeds from Marketing Trust Investments		69,052.13				530.00	—68,522.13	
Totals, California Marketing Act	$3,375,129.81	$11,138,543.39	$4,018,816.35	$299,577.83		$8,148,986.12	$—2,892.33	$2,043,400.57
AGRICULTURAL PRODUCERS MARKETING ACT								
Pear Crop Survey	$14,408.49	$12,363.82	$836.17			$17,876.99	[5]$12.38	$8,071.53
Unclaimed Checks	12.38						[6]—12.38 [14]48.28	48.28
Canning Bartlett Pear Zone No. 1	56,880.25	216,511.86	65,484.31		$6,495.37	193,119.48	[15]—3,088.95 [5]121.70 [11]7,500.00	12,825.70
Unclaimed Checks	121.70						[6]—121.70	
Canning Bartlett Pear Trade Stimulation	74,807.55	228,574.87			2,285.74	185,224.88	[4]—11,880.00 [15]3,088.95 [11]—7,500.00 [1]—3,000.00	96,580.75
Asparagus	957.23		957.23					
Brussels Sprouts Preliminary Deposit	1,200.00		1,200.00					
Totals, Agricultural Producers Marketing Act	$148,387.60	$457,450.55	$68,477.71		$8,781.11	$396,221.35	$—14,831.72	$117,526.26
Totals, Marketing Trust Account	$3,523,517.41	$11,595,993.94	$4,087,294.06	$299,577.83	$8,781.11	$8,545,207.47	$—17,724.05	$2,160,926.83

[1] Travel advance.
[2] Return of travel advance.
[3] Transferred from Administration and Advertising to Combined Order.
[4] Revenue correction.
[5] Proceeds from unclaimed checks.
[6] Reverted unclaimed checks.
[7] Transferred to Cling Peach from Stabilization Fund.
[8] Distribution of investment proceeds.
[9] Transferred to Money Due Growers.
[10] Transferred from Olive Order.
[11] Sales Stimulation pro rata share of Administrative Expense.
[12] Transferred from Olive Stabilization, 1957 season, to California Canned Green and Ripe Olives, 1957-58 season.
[13] Bank loan.
[14] Unclaimed checks.
[15] Abatement correction.

DIVISION OF ANIMAL INDUSTRY

DR. J. E. STUART, *Chief*

The Division of Animal Industry has five bureaus: Dairy Service, Livestock Disease Control, Livestock Identification, Meat Inspection, and Poultry Inspection.

The functions of these bureaus are explained in detail in this report.

The year 1958 was featured by important advances in veterinary medicine, particularly in virology, broadening the scope of diagnosis, the identification of viruses and the development of prophylactic measures.

New uses of antibiotics, pesticides and parasiticides, and the use of mass chemotherapy of improved drugs, along with pollution of the air with industrial wastes and radiological contamination of feeds, presented some of our bureaus with new problems with regard to disease control and the questionable wholesomeness of animal food products.

Methods of transporting and otherwise handling meat, poultry meat, and dairy products; slaughtering, marketing and shipping of livestock and poultry, also changed rapidly throughout the year and presented new problems to the bureaus.

Dr. G. A. Boyd retired as Chief of the Bureau of Meat Inspection on September 12, 1958, and passed away October 1, 1958. Dr. Boyd had served as chief since the position was established in 1941 to administer the newly created bureau. Dr. R. W. McFarland, formerly assistant chief of the bureau, was appointed bureau chief October 1, 1958, and Dr. G. W. Yeager was promoted from supervising meat inspector to assistant chief.

On October 6, 1958, Logan Morton resigned as Chief of the Bureau of Livestock Identification.

During the year the large increase in the importation of "foreign cold storage meats" greatly increased the licensing and inspection of these meats by the Bureau of Meat Inspection.

Work of the Bureau of Livestock Disease Control was increased about 25 percent due to expansion of the brucellosis control area program by the addition of 20 new counties during the year. As the year closed 41 counties were brucellosis control areas.

The campaign to eradicate brucellosis, a new major disease control activity, is carried on in addition to the established major programs of bovine tuberculosis, calfhood vaccination for brucellosis, and supervision of the cooking of garbage fed to swine, as well as the administration of the bureau's diagnostic laboratories and general disease prevention activities.

The brucellosis and tuberculosis programs and the garbage cooking activities were carried on in co-operation with the Animal Disease Eradication Division, Agricultural Research Service, United States Department of Agriculture, and county livestock departments.

California continues to receive the benefits of the law requiring cooking of garbage fed to swine and the sanitary control of ranches where such garbage is fed. As the year closed more than three years had elapsed since the last outbreak of vesicular exanthema in this State. It now appears there have been benefits from this program other than in the control of diseases of swine. A 1957 statistical report of the California Department of Public Health shows that the incidence of trichinosis in humans per year in the period 1951-1954 ranged from 30 to 40 cases, as contrasted with 7 to 9 cases per year during 1955-1957. The report states that "the cooking of garbage is believed to be a factor in the reduction of the prevalence of trichina in California hogs."

The Department of Agriculture suggests also that the great improvement in hog ranch sanitation, required by the new law, including modern rat-proof construction of buildings used on garbage feeding ranches, may also have contributed to reduction in the rat population, thus lowering the incidence of trichinosis. Health officials also report that the statewide calfhood vaccination program may have been one of the contributing factors in reducing the reported human cases of brucellosis from a peak of 320 cases in 1944 to a low of 37 in 1957.

Bureau of Dairy Service

G. A. GHIGGOILE, *Chief*

J. E. REYNOLDS, *Assistant Chief*

Market Milk Program

Surveys and inspection of dairies, milk plants, laboratories and the collection of samples of milk and cream for laboratory analysis are factors involved in the market milk program and are also used as a basis to determine the efficiency and degree of enforcement of approved milk inspection services. The total number of surveys and investigations made on these approved services during the year was 570.

During the year the Counties of Inyo and Yuba applied for approval of their county-wide milk inspection services. Following the required investigations, certificates of approval were issued to the two counties.

The Director of Agriculture is authorized to designate the city and county to do dairy farm inspection in counties where 2 or more agencies are involved. A request for redesignation was made in the Counties of San Joaquin, Stanislaus and Santa Clara by the milk inspection service of the County of Alameda which desired to withdraw its personnel from these counties. After a review of the evidence submitted at a hearing, the milk inspection service maintained by the County of San Joaquin was assigned all inspection within that county; the area in Stanislaus County assigned to the County of Alameda was reassigned to the milk inspection service maintained by the City of Modesto under contract with the County Health Department, and the dairies in that part of Santa Clara County assigned to Alameda County were reassigned to the milk inspection service maintained by the County of Santa Clara.

The director, when requested by a majority of distributors and producers of market milk in the territory, may establish milk inspection services in areas where no approved service exists. The department now conducts graded market milk activities in 23 counties.

Due to lack of personnel and equipment in the Sacramento Laboratory, the bureau contracted with 5 outside laboratories to conduct analyses on market milk samples. During the year these laboratories conducted 15,604 bacteriological and chemical determinations on 6,930 samples of market milk and cream. In addition 12,532 samples were collected and forwarded to the Sacramento Laboratory for analysis, and 15,402 labels for market milk were examined for accuracy. In addition, certain field tests were made. In order to check upon the quality and composition of market milk and cream, 144 lactometer readings, 3,053 flavor and odor tests, 3,817 sediment tests and 2,661 temperature tests were made during 6,805 inspections and visits to market milk dairies.

Persons purchasing milk or cream on the basis of bacteria count are required to have the bacteriological examination of the product conducted by technicians licensed and supervised by the bureau. During the year, 24 investigations were made on the accuracy of the work of 94 licensed technicians.

Employees of laboratories maintained in connection with approved milk inspection services must qualify through an examination pertaining to chemical and bacteriological examinations of milk and cream. If successful, they receive a certificate of proficiency in market milk analysis. Thirty-six such certificates were issued in 1958. One hundred checks or examinations were made on holders of the certificates, and 1,200 investigations were made on laboratory equipment.

There was little opposition to the request of a group of market milk producers for the removal of the requirement for a breezeway between the milkhouse and the milking barn, and for approval of a one-room milkhouse on dairies fully equipped with pipeline milk installations and bulk farm tanks. Accordingly, an amendment was made to the current dairy regulations to permit these changes when approved by the director.

Receiving Point Inspection

Quality determinations on milk and cream handled at milk products plants for manufacturing purposes are made by microscopic count, sediment test, modified volumetric

acidity tests, and flavor and odor tests. The combined odor-bacteria technique of identifying milk of poor quality is being continued. During the year, 1,103,405 lots of milk and cream were examined for quality by 70,411 microscopic examinations, 664,675 temperature tests, 755,874 flavor and odor tests, 665,131 sediment tests and 394 acidity tests. In addition 12,865 lactometer readings were made for the purpose of detecting milk adulterated by the addition of water.

The manufacturing milk and cream quality control program includes the grading of the products at the receiving platform and the inspection of dairy farms where such products are produced. This program is financed by voluntary trust fund agreements between dairy product processors and the department, through which 18 dairy inspectors are now employed, a decrease of two from the previous year and seven from the year 1956. This reduction is due to the sharp drop in the production of milk fat for manufacturing purposes.

Two thousand three hundred seventy-two visits were made to milk products plants for quality determinations on the products and 24,562 dairy farms were inspected. As a result, the sale of milk and cream was suspended from 41 dairies until they were restored to the proper sanitary condition, and 18,178 lots of milk, representing 1,201,429 pounds, and 10 lots of cream, representing 320 pounds, were condemned as unfit for human consumption.

Although there has been a sharp decline in the number of men engaged in this type of work, Table I shows the workload, with the exception of dairy farm inspection, to be fairly constant.

Frozen Milk Products Program

One thousand eight hundred thirty-five firms are licensed to manufacture frozen milk products, namely, ice cream, ice milk and sherbet. Samples of these products are collected at the point of manufacture, distribution and retail and forwarded to the bureau's laboratory at Sacramento where bacteriological and chemical determinations are made with specific reference to bacteria, milk fat, stabilizers and food solids.

Eight thousand nine hundred eighty-two samples were collected for analysis and 5,185 lots of frozen milk products were examined for quality.

Since ice cream and ice milk are required to contain a definite amount of food solids, accurate weight determinations must be made at the time the product is sampled. During the year, weight determinations were made on 5,874 units of ice cream and ice milk, and 5,185 lots of frozen milk products were examined for quality. The review of advertising and labeling material for these products required 17,017 investigations in 1958.

Butter Control Program

This program is based largely on the grading of the product for quality determinations, the results of laboratory analysis of the products from butter manufacturers, wholesale and retail dealers, and from licensed butter cutting and wrapping establishments and distributors. Since butter grades apply to the product at the consumer's level most of the sampling is done in retail establishments. During the year, 6,964 samples of butter were scored and examined for quality and 280 samples forwarded to the laboratory for analysis; 1,019 lots of butter were investigated for correctness of weight and 5,888 butter brands and labels examined. Every person or firm cutting and wrapping butter or distributing butter received from out-of-state in packaged form must maintain licensed butter graders. Seventy butter graders were licensed for the year 1958. Their responsibility is to make certain that butter is wrapped and packaged according to grade. There were 426 investigations or examinations made on the accuracy of their work. Failure to meet quality determinations resulted in the impounding of 29,373 pounds of butter as compared to 12,556 in 1957.

TABLE I

WORKLOAD MANUFACTURING MILK QUALITY CONTROL PROGRAM

	1954	*1955*	*1956*	*1957*	*1958*
Lots graded	1,201,137	2,957,424	2,065,462	1,768,800	1,103,405
Quality tests	1,791,494	2,720,633	2,296,578	2,262,986	2,169,350
Inspectors	25	26	25	20	18
Dairy farms inspected	49,270	39,142	41,369	29,697	24,562

Cheese Control Program

During the year, 926 samples of cheese and products thereof were collected for laboratory analysis and 6,789 labels and brands examined for accuracy. As the result of quality determinations on 512 lots of cheese, 285 pounds were impounded for failure to meet required standards.

General Products Inspection

The products coming within the classification of general products includes condensed milk, both whole and skim, concentrated milk, cream dressing, cultured buttermilk, buttermilk, evaporated milk, eggnog, acidophilus milk, modified milk, nonfat milk, milk fat, sterilized milk and cream, whip cream topping, whole milk powder, nonfat dry milk and flavored milk drinks. Samples of these products, and of certain ingredients used in their manufacture, are collected and forwarded to the laboratory for analysis. During 1958, 2,171 samples were collected for analysis and 2,090 lots of such products were examined for quality and proper labeling. Fourteen lots were rejected for failure to meet certain legal requirements. Two thousand three hundred ninety lots of various ingredients used in the manufacture of these products were examined for quality. One hundred thirty-two samples of ingredients were submitted for laboratory analysis.

Licensing of Imitation Products

Imitation milk products includes any product intended to be used for or as a milk product which contains oils or fats other than milk fat. During the year, 1,669 investigations were made on imitation milk products. During the fiscal year ending June 30, 1958, licenses were issued to 12 manufacturers of oleomargarine, 200 to wholesale dealers, 1,563 to bakers and restaurants, 2 to manufacturers of imitation milk, 16 to wholesale dealers, 185 to retailers, 8 to bakers and restaurants, 2 to manufacturers of imitation cream, 12 to retailers, 45 to bakers and restaurants, 8 to manufacturers of imitation ice cream and imitation ice milk, 118 to wholesale dealers and 2,783 to retailers.

Commercial Testing Service

Persons testing, sampling, weighing or measuring milk or cream, when the tests or the weights are used for determining payment of the products, must be examined and licensed by the Bureau. The work of all active licensees is checked for accuracy at irregular, frequent intervals. There were 400 checks and examinations conducted on milk and cream testers, and 1,431 on samplers and weighers. During the course of checking these licensees, 4,912 samples of milk and cream were collected for testing and 48,621 pieces of testing apparatus were examined of which 221 pieces were condemned as inaccurate. At the close of 1958, there were 795 licensed milk and cream testers and 2,006 licensed samplers and weighers.

One hundred thirty-nine farm milk tanks were installed on dairy farms during 1958, making a total of 3,902 at the end of the year, as compared with 3,763 at the close of 1957. Nine hundred fifty-one farm tanks were checked and tested during the year. Records pertaining to milk fat tests and weights of products purchased were checked at 474 milk products plants to determine the correctness of such tests and weights, and 325 investigations were made on sampling of milk and cream.

Dairy Container Service

Registration of dairy containers brands under the provisions of the Agricultural Code is permissible but is not mandatory. In 1958, 53 new dairy container brands were registered, and at the close of 1958 there were 829 active certificates. The enforcement of the provisions of the Agricultural Code relating to the use and handling of registered dairy containers must, of necessity, be largely on a self-supporting, voluntary basis and supported by trust fund agreements between various operators and the Department. There are 4 such agreements covering the Southern California area, the San Francisco Bay area and the Sacramento-San Joaquin Valleys. The three investigators employed on this program made 8,343 visits to various establishments to check on the containers, and were instrumental in returning 16,245 to their rightful owners. They also checked the brands and conditions of 819,019 containers and condemned 634. The handling of dairy containers from one area to another within the state is facilitated through the services of bottle exchanges organized and established throughout the state which are under the supervision of the department; 145 investigations were made on the operations of these exchanges.

Members of the staff connected with the manufacturing milk and cream control programs render service to the dairy industry in recovering stray milk cans. This activity resulted in the return of 1,483 cans to their proper owners. Staff members also examined 233,449 milk cans for defects, such as open seams and rust spots, and 4,717 were found to be defective and were condemned. The washing, sterilizing and drying of dairy containers is now usually accomplished mechanically. Four thousand two hundred seventy-nine inspections were made on such devices. Dairy containers can be used only for the reception of milk and milk products and must be protected against possible contamination at all times during transit. This provision accounted for 22,672 inspections of transportation facilities.

Dairy Service Laboratory

The primary duties of the dairy laboratory are to make chemical, bacteriological and other laboratory examinations on milk and milk products to determine conformity to legal standards, and to develop ways and means to detect adulterated milk products. Twenty-six thousand three hundred forty-five bacteriological and chemical determinations were made on 16,904 samples of milk and milk products. All glassware used for various methods of testing milk and cream must be examined in the dairy laboratory and certified as being correct before it can be used in California. Twenty-eight thousand one hundred seventy-one pieces were examined and 27,920 were approved. In addition to the examination of official samples, several hundred samples of milk and milk products were checked for flavor, odor, texture, color and quality. Some technical procedures followed in the laboratory were modified to facilitate prompt, accurate analysis so the results might be returned to the field personnel as soon as possible. The aceticsulfuric acid modification of Babcock test is now used to screen frozen milk products, mixes, milk drinks and cottage cheese for compliance with milk fat standards. Any sample showing a deficient amount of milk fat is retested by the Mojonnier method. This procedure enables the laboratory to analyze samples immediately upon arrival. Other projects of the laboratory staff involved a survey of spray residues and antibiotics in milk, work on plastic milk hoses wherein the presence of a phenol was a problem, the check of milk cartons for presence of phenolic resins which would interfere with the phosphatase test on milk, the check of diabetic ice cream for the presence of sucrose, the checking of low-sodium milk for quantity of sodium, checking butter samples for presence of foreign oils, and the checking of nonfat milk powders for ability to meet proposed federal standards.

The bureau co-operated with other state agencies in a survey of the state milk supply for the presence of Nocardia organisms and also examined several samples of milk products suspected of food poisoning.

The laboratory set up two split sampling programs for health departments in the state maintaining milk laboratories. This program involved identical samples for standard plate counts, coliform counts and phosphatase analysis. The laboratory also participated in two split sampling programs conducted on a national level by the U. S. Department of Public Health.

General

In 1958 the bureau made 4,566 visits to retail establishments for checking the labeling and quality of products, and 18,295 inspections and visits were made to milk products plants. At these plants 2,783 temperature recording devices were checked for accuracy and 19,345 temperature charts examined to ascertain that the products were properly pasteurized and that the required information appeared on such charts. During the year, 1,557 pasteurizer operators were checked for accuracy of their work, and at the end of the year there was a total of 2,481 licensed pasteurizers. The total of high temperature short time pasteurizing units checked was 230. Five hundred twenty-one new milk products plants and dairy farm buildings were constructed, and 1,110 buildings improved. Improvements secured on equipment amounted to 5,550, and on methods to 10,325. Three hundred thirty-three chemical tests were made on washing and sterilizing solutions, 52 sterility tests were made on equipment and 1,642 investigations were made of water supplies.

Members of the bureau continued to assist the Dairy Industry Division and the Division of Veterinary Science at the University of California, Davis, with instructions dealing with dairy science. They also assisted with the judging of milk and milk

oducts entries at the California State Fair d various district and county fairs. As in st years, the bureau again took over the pervision, demonstration and operation of e model dairy barn at the State Fair- ounds. Training courses were held in vari- is sections of the State for state, county and city milk inspectors and sanitarians. The bureau is assisting and co-operating with the U. S. Public Health Service in the collection of milk samples and forwarding them to the laboratory in Cincinnati where tests are made for the presence of radio- activity in milk.

ureau of Livestock Disease Control

G. WIXOM, D.V.M., *Chief*
F. CHASTAIN, D.V.M., *Assistant Chief*

ENERAL LIVESTOCK DISEASE ONTROL PROGRAMS

The law requires that licensed veterina- ns report certain animal diseases to the ureau immediately. Some of these animal seases, requiring specified disease control easures, are listed in this report.

thrax

Ten anthrax outbreaks in six counties, using 25 deaths, were reported in 1958. ne reports came from areas where anthrax s endemic. Merced County had three out- eaks, Tulare and San Luis Obispo Counties d two each, and one case was reported in ch of Santa Barbara, Santa Clara and Co- a Counties.

uetongue in Sheep

Sixteen flock outbreaks of bluetongue ere reported. Losses totaled 276 head. In e previous year, there were 52 outbreaks d 224 deaths. Infections and losses were ore severe in Imperial County in April d November among six flocks which had t received vaccine prior to or upon their rival in that county.

Bluetongue Outbreaks Reported in 1958

unty	Inf. flocks	Sheep	Infected	Dead
perial	6	9,800	960	250
s Angeles	2	2,200	10	2
doc	2	30	3	..
ador	1	.	.	..
sno	1	3,000	7	2
erside	1	2,000	50	12
n Joaquin	1	..	25	6
sta	1	180	10	..
go	1	150	.	4
Totals	16	17,360	1,065	276

Equine Encephalomyelitis

Fifty-seven clinical cases with nine deaths were reported in 17 counties. All cases oc- curred in the San Joaquin Valley or South- ern California, with the exception of two cases, one each in Sacramento and Sonoma Counties. Veterinarians reported vaccination of 1,568 horses.

Infectious Bovine Rhinotracheitis

The incidence of infectious bovine rhino- tracheitis, IBR, during 1958 was the heaviest since this virus infection of the upper respiratory system was identified in 1954. The most severe infections and heaviest losses appeared in feed lot cattle in Im- perial and Kings Counties. One mild out- break was reported in a dairy herd. No death losses were reported. All other reports involved beef cattle.

1958 Summary Report for Rhinotracheitis

County	Inf. Lots	No. of Cattle	No. Affected	No. Dead
Contra Costa	1	37	8	8
Fresno	2	5,000	189	3
Imperial	17	18,950	965	150
Kings	2	14,400	1,600	240
Riverside	4	1,450	150	2
San Diego	1	100	1	1
San Joaquin	4	6,320	306	7
Ventura	2	1,762	29	8
Totals	33	48,019	3,248	419

Outbreaks of Leptospirosis Reported, 1958

Species	North	Central	South
Cattle	188	434	100
Horses	1	12	1
Sheep	6	..	..
Swine	12	15	3
Totals	207	461	104

Scabies

No cases of psoroptic or sarcoptic scab disease, originating in states where scabies exist, were reported in California in 1958. During the year, Kansas, Nebraska, and Illinois were listed as cattle scabies states.

Wyoming was deleted from the list of 25 states having infected sheep flocks.

A permit, treatment, and certification are required on all cattle and sheep from all scabies areas prior to their entry into California.

Screwworm Infestation

The bureau assisted the United States Department of Agriculture in surveying screwworm infestations. More than 80 percent of the cases reported were found in Southern California, more than 19 percent in San Joaquin Valley, and less than 1 percent reported north of Sacramento.

Reported Screwworm Infestations July-December, 1958

Species	*South*	*Central*	*North*
Cattle	812	110	3
Horses	118	–	1
Sheep	159	–	–
Swine	7	–	–
Not stated	144	88	–
Totals	1,240	198	4

Scrapie of Sheep

No California cases were diagnosed in 1958. As the year ended, 266 flocks of 194,278 sheep were under inspection because of possible exposure to progeny of scrapie-infected sheep.

Ornithosis

Beginning in February, 1958, an outbreak of ornithosis occurred in a flock of 2,500 breeder turkeys in Tulare County. The diagnosis was made by the Fresno Laboratory and the School of Veterinary Medicine at Davis. Forty-three birds died. Egg production dropped from 76 percent to about 35 percent. The source of the infection was not determined. The owner chose to dispose of the flock, and, after good evidence of recovery and treatment with a high level of a tetracycline compound in the feed for six days, the flock was sent for slaughter.

In August the Petaluma Laboratory diagnosed ornithosis in a pigeon flock in Sonoma County. Confirmatory studies were made by the School of Veterinary Medicine and the George Williams Hooper Foundation. The flock consisted of 120 breeding pigeons and 15 meat squabs. There had been a general unthriftiness in the squabs and a small death loss. The entire flock was treated for one week with a tetracycline compound in the drinking water. After treatment and an inspection revealed that the infection had subsided, the flock was slaughtered.

There were no human cases associated with either of these outbreaks of ornithosis in turkeys and pigeons.

Early in 1958, arrangements were made to conduct a serological survey of turkeys for ornithosis. In this survey all turkeys over 10 weeks of age submitted to the six state laboratories were bled and the serum samples submitted to the school of veterinary medicine for serological test. Ornithosis was not diagnosed in any of the flocks under study. The survey will be continued during 1959.

The turkey flocks on three ranches which previously experienced outbreaks on ornithosis will also be checked serologically for this disease prior to April, 1959. Approximately 10 percent of the serum samples submitted for the official pullorum-typhoid test from these flocks will be tested for evidence of ornithosis.

Artificial Insemination

Dairy Cattle: During 1958, 7 organized artificial breeding associations reported first inseminations on approximately 320,000 dairy cows in 48 counties. Independent inseminations, as reported from district offices, included about 11,500 cows. This total was an increase of about 32,500 head over the 1957 total of approximately 299,000 head.

During the year, the use of frozen semen was greatly increased, with satisfactory results. Slightly more than one-third of the dairy cows in this State are being bred artificially.

Turkeys: Artificial insemination is being used in approximately 80 percent of the turkey breeding flocks. Trained crews are provided by breeding associations to conduct this service in some areas. Semen is collected from the turkey breeder's toms for use in each flock.

TUBERCULOSIS ERADICATION PROGRAM

The bureau and the Animal Disease Eradication Division of the United States Department of Agriculture continued the co-operative bovine tuberculosis eradication

ogram. Thirteen counties were redeclared odified accredited tuberculosis-free areas. lameda, Contra Costa, Del Norte, Fresno, umboldt, Imperial, Napa, San Diego, San aquin, Santa Cruz and Stanislaus Counties ere remodified for 3 years. Mono and nasta Counties were remodified for 6 ars.

Tuberculin tests were conducted by regutory veterinarians on 694,428 cattle in ,859 herds. One thousand, six hundred d forty-nine animals reacted to the test d were slaughtered under official meat spection. This total represents a reactor te of 0.24 percent.

Los Angeles County livestock inspectors ade 59,697 tuberculin tests on imported ttle. The tests revealed 113 reactors.

San Bernardino County veterinarians sted 876 imported cattle. No reactors ere found.

Practicing veterinarians conducted 11,035 berculin tests on cattle. Two reactors ere disclosed on these tests. They also sted 53 goats. All of these tests were gative.

oss Sensitivity

The problem of cross sensitivity proced by closely related organisms is inrent in most biological tests. This factor s been recognized in the tuberculin test r many years. As the incidence of tuberlosis decreases, this factor assumes increasg significance. To assist in this problem, herd history reporting procedure, (DAI orm 15) was inaugurated in 1958. A limited oject was begun to ascertain the degree to hich infection with the ovian or human rieties of Mycobacterium tuberculosis or hne's disease (Mycobacterium paratuberilosis) are responsible for tuberculin retions in herds free from bovine tuberlosis.

OVINE BRUCELLOSIS CONTROL ROGRAM

ulfhood Vaccination

More calves were vaccinated officially ainst brucellosis in California than in any revious year. A total of 419,609 animals ere vaccinated on 30,813 premises. Of the tal, 256,041 were of dairy breeds and 3,568 were of beef breeds.

Since the program began in January, 48, 3,562,870 calves have been vaccinated ficially.

Brucellosis Area Certification Program

As of January 1, 1958, 21 counties were official brucellosis control areas, as follows: Alpine, Butte, Colusa, Del Norte, Glenn, Humboldt, Inyo, Lake, Marin, Modoc, Mono, Nevada, Placer, Plumas, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, and Yuba. Del Norte County was the one modified certified brucellosis-free area of record in the State.

Control area counties added following public hearings were: Amador, El Dorado, Napa, Sacramento, Solano, and Yolo, February 28; Lake and Mendocino, March 14; Calaveras, May 12; Sonoma, August 18; San Joaquin and Stanislaus, August 20; Monterey, San Benito, Santa Clara, and Santa Cruz, September 4; Alameda, Contra Costa, San Francisco, and San Mateo, November 16.

As 1958 ended, 41 counties had been designated official brucellosis control areas, and Madera and Merced Counties had been approved to become control areas on January 17, 1959.

Alpine County was declared a modified, certified brucellosis-free area on January 24, and Inyo County was so declared on December 10, 1958. A report was received from the United States Department of Agriculture on September 15th that Mono County had been declared a modified, certified brucellosis-free area effective October 23, 1957. The date corresponded with the period that official testing had reduced the incidence of infection to less than 1 percent of the cattle and less than 5 percent of the herds.

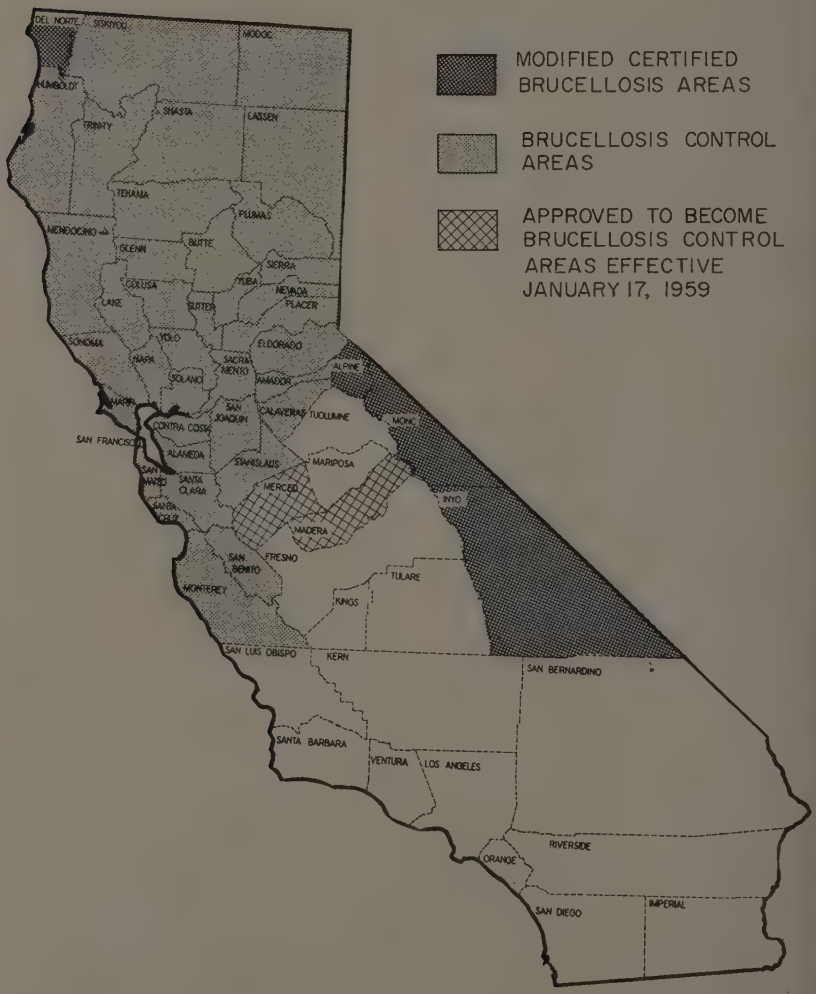
Bovine Brucellosis Tests, Control Areas, 1958

Brucellosis ring tests		
Herds tested	7,444	
Herds negative	5,556 or	74.7%
Herds suspicious	1,888 or	25.3%
Total cattle represented by BRT		449,258
Cattle represented in BRT negative herds		341,117
Cattle represented in BRT suspicious herds		108,141
Brucellosis blood tests		
Herds blood tested		10,155
Cattle blood tested		281,195
Cattle reacting positively		5,177
Percent infection in cattle actually blood tested = 1.08%		
Percent infection in cattle blood tested plus BRT Negative herds = 0.83%		

Changes in Brucellosis Regulations

On November 16, 1958, the California Administrative Code was amended to provide for an alternate method of qualifying range and semirange herds for release from quarantine when they passed one negative

BRUCELLOSIS CONTROL AREAS AND MODIFIED CERTIFIED BRUCELLOSIS AREAS AS OF DECEMBER 31, 1958



for brucellosis conducted not less than
days from the date all reactors resulting
m that test were removed from the herd
slaughter.

tus of Adult Vaccinated Cattle

The official status of cattle vaccinated
inst brucellosis as adults under the Ad-
nistrative Code prior to January 1, 1957,
ired on July 1, 1958.

From that date forward, all those cattle
cially vaccinated as above, showing a
itive reaction to a brucellosis test, were
uired to be branded on the left jaw and
ved only under written permit, as re-
red by the Administrative Code. The
vement of official adult vaccinates be-
ne subject to a negative blood test, as
vided in the Administrative Code.

wate Brucellosis Tests, Noncontrol Areas

Reports of brucellosis tests from noncon-
ll counties showed 49,259 cattle in 7,042
were tested during the year. Seven hun-
d sixty-nine were found to be infected,
re identified by branding, and held on
premises.

k Whey Test Pilot Project

With some modification, the Marin County
t program, using the milk whey test in
of the blood serum agglutination test,
s continued. Lactating cows in ring test
picious herds were whey tested. Cattle
cting to the milk whey test, and nonlac-
ng cattle in the herd, were blood tested.
ose animals reacting positively to the
od test were condemned.

The pilot program, using the milk whey
, was extended into Sonoma County
en that county became a brucellosis con-
ll area on August 18. The purpose of these
grams was to evaluate the efficacy and
cticability of the milk whey test under
d conditions.

ne Brucellosis Control

Reports received indicate that 1,033 swine
194 lots were tested for brucellosis dur-
the year. Forty-four reactors were found
one herd. At the end of the year, 19
ne breeders were participating in the vol-
ary swine brucellosis certification pro-
m. Ten held brucellosis certificates.

VESICULAR EXANTHEMA CONTROL PROGRAM

As 1958 ceased, there had been no outbreak of vesicular exanthema in California for 3 years. The last outbreak was recorded in Santa Clara County in November of 1955. During 1958, licenses were issued to 338 garbage feeding establishments.

In 5 court cases, in which the defendants were accused of violating the "swine diseases from garbage" law, fines ranged from $25 to $100. In 2 cases, where no fines were levied, two- and three-year probation periods were imposed. In 4 other cases, jail sentences were suspended in lieu of probation. One administrative hearing was held. The operator was placed on probation and all specified repairs and corrections were completed.

1958 Summary Report on Enforcement Procedures

Number of ranch inspections	12,868
Violation notices issued	90
Hold orders issued, violations Section 216/216.3 A.C.	61
Citations—general (1) Admin. (1) District Attorney (9)	11
Court trials	7
Defendants found guilty	7
Fines paid by defendants	$250.00

LIVESTOCK AND POULTRY PATHOLOGY LABORATORIES

Sacramento Laboratory

The Sacramento Laboratory had an increase of about 25 percent over the preceding year in livestock casework. The most notable increase was in the numbers of sheep cases submitted for examination.

In cattle, from observations of data of this laboratory, it is indicated that about 21½ percent of the blood specimens submitted for leptospirosis diagnosis show reactions to *Leptospira pomona* antigen, and for anaplasmosis about 2½ percent show a reaction, as compared to an average of 5.7 percent submitted in the previous three years.

PPLO infection was again diagnosed in goats, this time in a dairy herd. In late summer, myxomatosis was diagnosed twice in rabbits, the first case at this laboratory in several years. White muscle disease was diagnosed several times in cattle and sheep and once in an equine early in the year, 3 cases of lymphosarcoma (possibly malignant thymoma) in young cattle from an extreme northern area, and a *Streptococcus sp.* (enterococcus group) were isolated from a pneumonic condition in sheep.

Clostridial diseases, anaplasmosis and leptospirosis, were diagnosed most often as single entities.

Toxicoses included were lead, arsenic, mercury nitrates, molybdenum, locoweeds, milkweeds, ergot, fescue, *Ranunculus sp.* and Lance Leaf Ground Cherry, either incriminated or suspected.

The use of gamma phage has proven to be of considerable value in the diagnosis of anthrax, especially atypical forms, as an additional confirmatory method. Gamma phage is an ultra microscopic agent that has been found to be a specific in suppressing visable growth of *B. anthracis* by the process of lysis.

Work was concluded on a new form (DAI Form 88) for use of practitioners in submission of specimens.

In poultry, alimentary tract mycosis, principally crop involvement in turkeys, was a significant infectious disease, from the standpoints of: (a) incidence rise (10 accessions in 1956, 25 accessions in 1957, and 63 accessions in 1958); (b) increasing refractivity to available fungicides, and (c) disturbing correlation with "broad spectrum" antibiotic therapy. Diagnosis was based upon gross pathology and microscopic demonstration of hyphae and spores from lesions. As supplementary procedures, some cases were confirmed histopathologically and through isolation of *Candida albicans* (Monilia) from lesions (Pagano-Levin medium, Squibb). Many cases classified as "nonspecific enteritis" have yielded somewhat impressive evidence of mold involvement. This specific area is in need of clarification, primarily for the sake of therapeutic approach.

The incidence of other mycoses were: 46 accessions of respiratory tract mycoses, one of possible brain mycosis; two of disseminate mycosis.

Spirochaetosis was diagnosed in early November in a flock of turkeys 8 months old. This is the first encounter with this entity, in this laboratory area, in the past decade. Historically, Hoffman, Jackson, and Rucker diagnosed the first North American case in turkeys at this laboratory in 1946 from the same vicinity.

Due to a moderate increase in incidence of hemorrhagic syndrome (HS), special studies were conducted relative to etiology. Under conditions of a limited trial, it was found that HS produced by sulfaquinoxaline, in controlling coccidiosis (only 2 out of 12 birds in a controlled trial extending 136 days developed HS, one on 36th day and the other on 43d day of continuous .04 percent water medication) is grossly indistinguishable from an apparent mycotoxicosis encountered here.

An unusually pathogenic strain of *Estherichia coli Group 0-88* was encountered in July in a flock of 6,000 turkeys 11 days old previously considered normal. Despite a wide range of medications tried, mortality exceeded 50 percent in a three-week period. A serious complication was severe crop mycosis which appeared during the second week of the disease.

Fresno Laboratory

Fresno Laboratory items of special interest in the routine laboratory examination of large animal tissues included the following:

The isolation of a Hemophilus-like bacterium from the brains of cattle showing central nervous system disturbance. One outbreak occurred in a group of feeder cattle resulting in a significant acute death loss, and the other isolation was from an individual 2-year-old Hereford bull that exhibited symptoms for at least 2 weeks. Histopathology of the brains of animals from the former group showed a diffuse suppurative encephalitis and the brain of the latter animal grossly showed bilateral encapsulated abscesses in the cerebral ventricles.

The demonstration of a pleuropneumonia-like organism (PPLO) in the joints and synovial fluid in feeder cattle showed polyarthritis and synovitis resulting in acute lameness and subsequent crippling.

Clostridium sordelli accounted for about 40 percent of the clostridial isolations. At present, this anaerobe is associated with individual peracute death in cattle and does not appear to be a potential herd problem. This laboratory classified the pathogenic form as *Clostridium sordelli* and the nonpathogenic (to guinea pigs) as *Cl. bifermentans*. The outstanding necropsy finding is evidence of liver necrosis, generalized lesions of toxemia and septicemia and very often, as in *CL. novyi*, there is a diffuse hemorrhage in the submucosa of the larynx and trachea, and hemorrhage and necrosis of the musculature adjacent to the larynx.

Ovine pneumonia complex in lambs, described by Boidin and others, was observed in an acute outbreak in ewes. Direct smears, serology (ornithosis antigen) histopathology, and mouse passage were the laboratory aids in establishing the diagnosis. *Clostridium novyi* also accounted for some of the loss in this outbreak.

A Norcardia-like organism was isolated from an apparent infectious dermatitis in Holstein heifers. The macroscopic and microscopic pathology was confined to the epidermal layers resulting in encrustation and subsequent denuding of the affected area. This isolate caused a similar pathology in test rabbits and guinea pigs.

In poultry, chronic respiratory disease continues as the major disease problem in chickens and also has caused a significant economic loss to the turkey industry, primarily through the loss of potential breeder flocks. The area serviced by the Fresno Laboratory has been relatively free for about five years of infectious laryngotracheitis, a disease peculiar to chickens, but in December, 1958, a somewhat spontaneous outbreak occurred in the Dinuba area invading commercial laying flocks within a 3- to 5-mile radius. Started replacement pullets recently vaccinated against this disease and introduced into susceptible flocks was the probable entry of the causative virus. Due to the prompt action of the neighboring poultry growers the disease apparently has been confined to that immediate area by the intelligent use of the live virus vaccine and the awareness of the probable spread by direct contact from infected premises.

Ornithosis was observed in a turkey breeder flock located in the Dinuba area in February, 1958. The tentative diagnosis was determined by direct smear and serology and the confirmed diagnosis by mouse passage and chick embryo inoculation. The Fresno Laboratory is now equipped to handle this disease with a minimum of danger to employees.

Petaluma Laboratory

The Petaluma Laboratory had a larger overall work volume in 1958 than in any previous year. Increases in work over the preceding year were most evident in serological testing for brucellosis (200%+), pullorum and paratyphoid disease, and in large animal diagnostic cases (50%).

In large animals, there was a noticeable increase in paratyphoid infections in cattle and two cases of trichomoniasis in cattle. Both cattle and sheep showed considerable increases in *Clostridium septicum* and *Clostridium sordelli* infections and in enterotoxemia.

Anthrax and equine encephalomyelitis, both occurred in the area during the year. Johne's disease and leptospirosis occurred a number of times in sheep and cattle.

Salmonella typhisuis was isolated from swine the first time at the Petaluma Laboratory. This tbreak presaged further trouble in a second a, which was to occur early in 1959. The ection seems to be quite virulent for young gs, often causing a fatal septicemia. The or-isms were isolated in all instances from liver iue, spleen tissue or lung abscesses, but not from estines.

In chickens, there were considerable increases diagnoses of the following: Capillaria worm estations, Intestinal coccidiosis, Infectious cory-Infectious hepatitis and Reproductive disorders.

Diagnoses of capillary worm infestations in ckens increased 100 percent and were over 100 cent higher than diagnoses of ascarid infestation.

Diagnoses of Newcastle disease and infectious yngotracheitis decreased considerably.

In the Petaluma area, infectious hepatitis was associated with synovitis. These conditions urred as separate problems and synovitis in-ased only slightly in incidence, when com-ed with 1957 records.

Ornithosis was diagnosed in one commercial eon flock.

Xanthomatosis was diagnosed in chicken flocks two occasions. This condition had not pre-usly been seen at the Petaluma laboratory.

There were no significant changes in turkey ase diagnoses and no single trouble was out-nding. Respiratory infections, coccidiosis, asper-osis, blackhead, enteritis and erysipelas all tinued as problems.

n Gabriel Laboratory

The number of large animal cases submitted by erinarians increased approximately 70 percent k 1957. The diagnosis of diseases involving n animals places considerable responsibility on laboratory because of the economic importance infectious disease outbreaks and also their sible relationship to human health.

There is considerable interest in the incidence leptospirosis, particularly in cattle. Many serum ples are submitted for the *Leptospira pomona* llutination test. Positive reactions have been ected in cattle from all counties served by this ratory except Orange, but most frequently in San Bernardino-Riverside area, followed by ta Barbara and San Luis Obispo Counties.

Several isolations of apparently virulent strains *Pasteurella multocida* were made from cattle, ep, and swine. In some instances, no known plicating diseases were present. Liver, spleen, other tissues from dead animals yielded the nisms, which were lethal to guinea pigs.

Laboratory tests of bovine serum samples have aled a relatively large number of Vitamin A ciencies during the latter part of this year, n the rainfall was unusually low and pas-s were dry. Avitaminosis A has been asso-ed with abortions, blindness of newly born es, and in one instance there was a peculiar s of dermatitis.

In November, tissue specimens were submitted 2 groups of veterinarians who were collaborat-on a case involving a 4-year-old thoroughbred e. This animal was said to be insured for ,000, and a decision had to be made on the nosis. A tumorous section of the intestine was ically removed and submitted for histopatho-al study. The diagnosis of lymphosarcoma was pted and the animal was euthanatized.

While the number of poultry cases submitted to the San Gabriel Laboratory decreased slightly during 1958, the cases, in general, seemed to require more extensive and specialized studies. This situation is due, in part, to the fact that the poultry industry in this area is undergoing a change from relatively small egg-producing ranches to corporations where a very large number of hens is maintained. Fryer production here has largely been discontinued. Several of the smaller hatcheries and individual feed companies have merged to form large organizations, often operating nationally. These concerns employ veterinarians, or other trained personnel, to assist in disease and ranch management problems.

These factors influence the character of the diagnostic requirements and procedures. There is less demand for help in solving immediate emergency disease problems, common on small ranches. The large and intensive poultry operations require studies leading to the development of long-range preventive and control measures. It is increasingly necessary to do more detailed and exhaustive investigation of bacterial and viral diseases peculiar to this situation.

Several live-virus vaccines, together with natural exposures of viral and bacterial infections, cause a complexity of problems, particularly with respiratory diseases which are enzootic in this area.

At one time pullorum disease was a serious problem in chicks and turkey poults. In 1945, there were 658 diagnoses in chicks, in 1950 there were 147, and in 1958 there were only two. One of these occurred in chicks from a hatchery operating under the U. S.-California pullorum disease program, and the other from stock imported for potential breeding purposes. With the exception of one outbreak in 1953, there has been no diagnosis of pullorum disease in poults since 1951.

Turlock Poultry Laboratory [1]

At the Turlock Poultry Laboratory, 4 diseases in chickens accounted for more than half the total number of diagnoses in this species. They were chronic respiratory disease, infectious hepatitis, coccidiosis, and enteritis. In turkeys, nearly half the diagnoses were attributed to 4 diseases: enteritis, infectious hepatitis synovitis, air sac infection, and coccidiosis. Aspergillosis in turkeys was much more common than usual, due to the prolonged dry weather in the valley. A few cases of infectious hepatitis were encountered in tom turkeys in which there was a sudden onset with high mortality simulating possible fowl cholera or erysipelas. The paracolon and paratyphoid group of bacteria caused very little trouble this year. There were only two diagnoses of paratyphoid due to *S. typhimurium*. Several types of paratyphoid bacteria were encountered for the first time at this laboratory, although they proved to be relatively harmless to the affected turkeys. These types were *S. blockley*, *S. heidelberg*, *S. infantis*, *S. kingston*, *S. montevideo*, *S. thompson*, and *S. binza*.

On October 7, 1958, the laboratory operation was moved to a new building[1] about 60 feet in the rear of old temporary quarters used for 10 years. The new building contains about 2,800 square feet of floor area, 600 square feet more than the old building.

Additional personnel was required as a result of the greatly increased upkeep and maintenance problems which go with a new building. This was provided for by the employment of a poultry

[1] See *Quarterly Bulletin*, Volume 48, No. 1, January, February, March, 1959.

testing assistant on a part-time basis on October 7, 1958.

Lancaster Poultry Laboratory

At the Lancaster Poultry Laboratory, respiratory diseases formed the bulk of the diseases of chickens. Of these, chronic respiratory disease (C R D) and air-sac infection were most common, representing 33.7 percent of the total cases, followed by laryngotracheitis (8.5 percent) and infectious bronchitis.

Laryngotracheitis occurred rather frequently in fryer flocks, often following laryngotracheitis vaccination. Many of these latter "breaks" came in flocks which had C R D at the time of the laryngotracheitis vaccination, one example of the trigger-stress effect of vaccination on C R D.

Hepatitis and synovitis increased in incidence and severity in the area. Avian encephalomyelitis was encountered in a series of outbreaks traced to a relatively few hatchery sources.

In turkeys, C R D (sinusitis—air-sac infection) was the most common infection encountered, followed by hepatitis-synovitis, which increased over 1957. There were relatively few cases of paratyphoid and Arizona paracolon infection in poults. Most paratyphoid infection was mild, and due to species other than *S. typhimurium*. Three cases, from a common breeder source, of round-heart disease was seen in poults from one to two weeks of age.

A technical paper on "A Slide Smear Technic for Diagnosis of Fowl Laryngotracheitis" was accepted for publication by Avian Diseases.

Improvements in the laboratory building, in the form of a test chick brooder room and a shed for housing test birds, were completed.

1958 Summary of Laboratory Accessions and Serological Tests

Laboratory	Poultry accessions	Pullorum Agg. S. tests	Typhimurium Agg. tests	Animal accessions	Brucellosis Agg. tests	Brucellosis Ring tests	Leptospirosis Agg. tests
Sacramento	1,300	184,185	138,016	615	133,353	5,066	1,382
Fresno	2,113	436,511	105,586	1,465	28,215	1,075	3,119
Petaluma	1,843	57,710	11,227	576	69,961	4,294	1,901
San Gabriel	3,074	159,760	49,713	426	13,412	11	2,606
Turlock (Poultry only)	4,713						
Lancaster (Poultry only)	803						
Totals	**13,846**	**838,166**	**304,542**	**3,082**	**244,941**	**10,446**	**9,008**

Bureau of Livestock Identification

PAUL G. ROBERTSON, *Assistant Chief*

Brand Registration

With the exception of swine, the Hide and Brand Law provides for the registration of all brands used on livestock. The recording fee is $2. Brands are renewable each year at the rate of $2 per year and may be paid in advance for 10 years. If the renewal fee is not paid within a 30-day grace period after due date, the brand is suspended and may be reinstated within the year by payment of a $4 reinstatement fee. Brands may be transferred from one owner to another by recording the transfer and paying a transfer fee of $2. Duplicate copies of certificates may be obtained for a fee of $1 each.

New recordings	2,407
Reinstatements	887
Renewals	16,873
Transfers	525
Duplicate certificates	15

Licenses

The bureau licenses all persons engaged in slaughter of cattle and horses. The license fees range from $20 to $100, depending upon the volume of slaughter per month. A license is also required of persons operating a public sales yard. The fee is $100. Persons who buy horses, mules, or burros for transportation in their own or a borrowed conveyance, for sale or slaughter, must procure a horse transportation license. The fee is $12 per year.

Licenses Issued During 1958

Cattle slaughterers	177
Horse slaughterers	13
Public Sales Yards	66
Horse transportation	10

Field Activities

Missing livestock is reported during the year, and when located is returned to owners. Many animals stray from home pasture without knowledge of the owner and are therefore, not reported as missing. These animals, if the owner can be located, are returned. This fact explains why, in some instances, in the following table the number of animals returned in 1958 is greater than the number reported missing.

Animals Returned to Owner

	Reported	*Returned*
Cattle	1167	1502
Horses	17	37
Sheep	1321	117
Goats	0	15
Swine	1	17

Estray Cases

Estray animals are those found in possession of persons not authorized to have possession. Estray animals are seized by the department and advertised as required by law. If they are not claimed within 30 days, they are sold and the money held in trust for one year. If the money is not claimed within the year, it is deposited in the Department of Agriculture Fund. Animals seized in 1957 and sold during 1958 will account for the number of animals sold exceeding the number seized. Animals seized during 1958 and neither returned or sold are carried into 1959.

Estray Animals Seized in 1958

	Seized	*Sold*	*Returned*
Cattle	150	92	33
Horses	21	9	6
Sheep	25	20	2
Goats	28	30	2
Swine	5	4	4

Inspections

For the purpose of ascertaining ownership of cattle, 120 inspectors and supervisors are maintained in the field to inspect livestock at sales yards, slaughterhouses, stockyards and at private sales.

All animals inspected during 1958 totaled 5,446,610.

Enforcement

Bureau officials assist law enforcement officers in the collection of evidence and presentation in court. The table shows the results of this activity during 1958. A conviction of one person may carry three types of sentence for the same offense: restitution to the victim, a jail sentence, and fine. In some instances, a jail sentence may be given but

suspended and the defendant given probation. In 1958 there were 115 warnings issued.

Grand Theft Cases

Complaints filed	58
Convictions	38
Acquittals	6
Pending	14

Sentences

State prison	15
County jail	18
Probation	18
Restitution orders	12
Fines	$1,400

Misdemeanor Cases

Complaints filed	22
Convictions	19
Acquittals	2
Pending	1

Sentences

County jail	2
Probation	7
Restitution orders	0
Fines	$3,335

Railroad Accident Reports

When an animal is killed or injured on the right of way of a railroad, the owner or operator of the equipment causing the death or injury is required by law to report the collision to the owner if known, otherwise to the bureau. The bureau makes a search of records to ascertain the owner who is then notified.

One hundred and twenty-two animals were reported to the bureau as killed or injured on railroad rights of way in 1958.

Statewide Brand Registration

December 31, 1958, closed the 10-year period during which members of the livestock industry were required by law to register their brands on a statewide basis. Where two or more brands were so similar as to be conflicting, the brand holding the lowest registration certificate number retained statewide status and the others had to be adjusted or forfeited. At the close of the year 353 brands were forfeited. (See *Quarterly Bulletin*, volume 47, number 3, page 227.)

We acknowledge the excellent co-operation of members of the sheriffs' offices and California Highway Patrol throughout the State in assisting our field personnel with cattle theft investigation.

A weekly bulletin was published which listed all animals reported missing, and noted missing animals returned to owners.

During the year inspectors collected, and the bureau transmitted to the California Beef Council $140,669.59 in beef promotion fees.

ıureau of Meat Inspection

. R. W. McFARLAND, *Chief*
. G. W. YEAGER, *Assistant Chief*

California meat inspection is recognized authorities as a good example of state eat inspection organization. Many inquiries re received in 1958 from other states and unicipal governments requesting informaon regarding the administration of the ureau.

The total cost of the service during the cal year 1957-58 amounted to $952,802, inding $68,976 in compensation for overne and holiday work performed by inectors and reimbursed to the State by tablishment owners as provided for in ction 317.5 of the Agricultural Code.

mber of Establishments

The total number of establishments operng under state inspection dropped from 7 in 1957, an alltime high, to 366 in 1958. rty-one of these establishments were enged solely in slaughtering, 19 in both ughtering and processing, and 306 in meat ocessing only.

At the end of the year, 52 meat processing ants were under the inspection of the 2 maining state approved municipal meat spection services. San Francisco, with 51 proved establishments, and Marysville, th 1, were the only 2 municipalities perming meat inspection service.

The number of plants operating under emption remained at 2, the same as in the evious year.

aughtering

A total of 1,335,833 animals were slaughred in state establishments in 1958, a dease under 1957 of almost 11 percent presenting 162,449 animals. The number of ttle accounted for 33 percent of the dease, calves 45 percent, sheep 6 percent d swine 15 percent. Meat plants operated der federal inspection within the State owed a similar pattern of decreased ughter for the year with 674,093 fewer imals killed. Of this decreased number, cattle comprised 37½ percent, calves 17 percent, sheep 23 percent and swine 22 percent.

Processing

State inspected meat plants produced 222,659,538 pounds of meat food products, an increase of 15 percent, or 34,139,964 pounds, over 1957. Approved municipal inspected plants manufactured 27,414,989 pounds of meat food products, a decrease of 12,137,363 pounds, or 30 percent under last year. This is explained by the fact that for the first six months of 1957, 33 plants operated under Oakland and Sacramento Approved Inspection. These plants transferred to state inspection on July 1st of last year.

Meat Inspection Laboratory

The meat inspection laboratory examined 2,038 samples of meat products and materials. This is an increase of 289 samples, or 16 percent, over 1957. This reflects the increased sampling necessary to keep pace with the increase in the amount of meat food products manufactured, and to maintain adequate control in the prevention of excessive amounts of added water or fillers in sausage, adulteration, contamination, preservatives or artificial coloring in meat products. No preservatives were found. Only 2 samples showed artificial coloring.

Tabulated results of these examinations follows:

TABLE 1

	Passed	*Not Passed*	*Not * Classified*	*Total*
Meat and meat products	1385	341	3	1729
Edible oils and fats	39	1	1	41
Curing material	103	11	2	116
Spices, cereals, condiments	52	10	0	62
Miscellaneous	82	7	1	90
Totals	1,661	370	7	2,038

* Refers to samples received in condition not suitable for proper analysis.

Construction

The expansion and modernization of existing plants, and the construction of new plants by meat plant operators, continues at a high rate, providing satisfactory environment for the inspection and handling of the increase in meat production.

Fifty-five plans for the construction of meat plant structures were approved, an increase of 3 over the previous year. Seventeen of the approved plans were for new establishments.

Labels

To give the consuming public a true picture of the meat and meat products being offered for sale, a total of 3,172 labels and sketches were reviewed in 1958. Of these, 120 were not approved. A large number of sketches were approved with the understanding that corrections would be made before final approval would be given.

Foreign Cold Storage Meat

Foreign cold storage meat imported into the State again showed a marked increase over the previous year. A total of 68,134,744 pounds of foreign cold storage meat was inspected in 1958, representing an increase of 49,983,680 pounds, or 275 percent, over 1957. The foreign cold storage meat included 51,484,124 pounds of beef, 3,798,438 pounds of veal, 584,581 pounds of lamb, 747,469 pounds of mutton and 5,886 pounds of pork from New Zealand; 3,366,621 pounds of beef, 527,113 pounds of veal, 11,288 pounds of lamb, and 1,136,615 pounds of mutton from Australia; 5,098,984 pounds of beef and 9,199 pounds of pork from Mexico; 897,879 pounds of beef from Ireland, and 338,696 pounds of beef from Costa Rica. This meat required 4,833 hours for inspection and the payment of $14,342.96 in inspection fees.

A total of 1,040,985 pounds of foreign cold storage meat was rejected as unfit for food. Of this total 693,218 pounds were reshipped to Canada, 82,861 were reshipped to the Philippine Islands, 55,969 pounds were used as animal feed; 50,000 pounds were condemned and sent to rendering plants, and 158,937 pounds were retained at the port of entry for further inspection and final disposition.

Licenses issued for handling foreign cold storage meat and license fees collected were as follows:

TABLE 2

Type License	*Number*	*Fee*	*Total*
Retail	878 @	$10	$8,780
Wholesale	108 @	25	2,700
Importer	27 @	25	675
Restaurant	22 @	5	110
Totals	1,035		$12,265

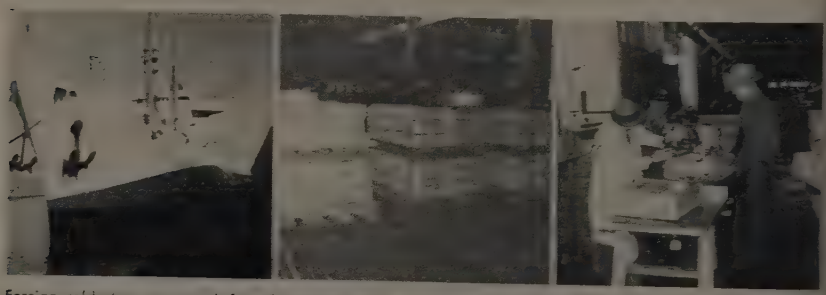
The number of licenses issued and fees collected increased by 778 and $9,365, respectively, over 1957, indicative of the increased distribution of foreign cold storage meat throughout the State.

Violations

Violations of the Agricultural Code resulted in $425.00 in fines paid, $1,500 in fines suspended, 325 days of suspended jail sentences and the imposition of nine years probation to offenders.

Condemnation Summary

During the year 2,976,758 pounds of meat and meat products were condemned as unfit for food. This total included 5,688 carcasses.



Foreign cold storage meat. Left, refrigeration ship at pier. Center, cartons of frozen boneless meat on pier prior to inspection. Right, meat inspector examining the frozen shipment.

Splitting beef carcass from a moving, pneumatically controlled platform.

245,891 parts condemned on ante and post-mortem inspection, and 467,191 pounds of processed products. Seventy-two percent of the total carcass condemnations were due to emaciation, pneumonia, peritonitis, septicemia, pyemia and caseous lymphadenitis.

There was a high rate of condemnation of cattle livers for flukes and abscesses. During the year, 41,717 cattle livers were condemned for abscesses, while 71,213 cattle livers were condemned for fluke infestation. These two causes alone accounted for 1,158,127 pounds of condemned liver. Twenty seven and one-half percent of all cattle livers inspected were condemned for abscesses or flukes, a 1 percent increase over similar condemnations in 1957.

A total of 698 carcasses were retained for tuberculosis. This included 517 cattle and 181 swine. One hundred twenty-six cattle reacting to the tuberculin test showed gross lesions of tuberculosis on post-mortem examination, of which 12 were condemned. Twenty-six of these reactors were found to have skin lesions only, while 338 reactors exhibited no visible lesions.

Twenty-seven regular kill cattle were retained for tuberculosis of which 6 were condemned.

Of the 181 swine retained for tuberculosis, 106 originated in California, 11 were condemned; 75 originated out of state, 2 were condemned.

There were 349 cattle retained for Cysticercus bovis (the intermediate stage of the human tapeworm, Taenia saginata), a decrease of 39 under last year. Of these, three carcasses were condemned as unfit for food; 157 were passed for food following freezing or cooking, and 189 were passed for food after removal and condemnation of the parasite.

Estimated Uninspected Slaughter *

Cattle	19,000
Calves	30,000
Sheep	53,000
Swine	65,000
Total	167,000

* Estimated uninspected slaughter includes: (1) Animals slaughtered in uninspected slaughtering establishments located in counties of less than 28,000 population, in which compulsory meat inspection is not operative; (2) animals slaughtered in counties of over 28,000 population but under inspection exemption; (3) animals slaughtered on farms.

Animals slaughtered in California under state and federal inspection during 1958:

TABLE 3

Species	State inspection		Federal inspection		Total	
	Inspected	*Condemned*	*Inspected*	*Condemned*	*Inspected*	*Condemned*
Cattle	411,261	1,064	1,699,982	3,916	2,111,243	4,980
Calves	229,622	902	320,466	2,533	550,088	3,435
Sheep	473,042	3,325	1,602,375	12,666	2,075,417	15,991
Swine	220,348	386	1,467,200	2,953	1,687,548	3,339
Goats	1,560	11	—	—	1,560	11
Total	1,335,833	5,688	5,090,023	22,068	6,425,856	27,756

Bureau of Poultry Inspection

L. E. BARTELT, D.V.M., *Chief*
H. W. STAGGS, D.V.M., *Assistant Chief*

Processing

From January 1 to December 31, 1958, the poultry processing plants operating under State supervision processed 110,074,050 pounds of ready-to-cook poultry. An undetermined amount was sold as New York dressed poultry not required to be reported.

TABLE 1

Summary of Poultry Processed
January 1-December 31, 1958

	Ready-to-cook weight total
Chickens	82,496,986
Turkeys	20,174,775
Rabbits	5,040,466
Other Poultry	2,361,823
Total, pounds	110,074,050

Condemnation Summary

From January 1 to December 31, 1958, 132,089 carcasses were reported condemned as unfit for human consumption. A total of 523,828 pounds of poultry was condemned. This latter figure included whole carcasses as well as the parts trimmed and condemned.

Law Found Constitutional

On October 25, 1957, the department was restrained from enforcing that part of the regulations which deal with poultry plant construction requirements. On November 5, 1958, the Superior Court of Fresno County found that the Poultry Plant Sanitation Act and the California Poultry Inspection Regulations promulgated thereunder are valid and enforceable laws and regulations not contrary to any provisions of the Constitutions of the United States or the State of California.

Licensing

As of December 31, 1958, 473 poultry processing plants were licensed by the bureau; 1,026 licenses were issued to poultry meat inspectors.

TABLE 2

Licenses Issued and Fees Collected
January 1-December 31, 1958

Type of license	*No.*	*Fee*	*Total*
License to operate a poultry plant	473	$40	$18,920
Poultry meat inspector's license	90	10	900
Poultry meat inspector's renewal license	936	5	4,680
Total license fees collected			$24,500

Personnel Changes

During 1958 a new classification, senior poultry plant sanitation inspector, was included in the bureau's table of organization, and four of the bureau's poultry plant sanitation inspectors were promoted to the senior position. These employees have taken complete charge of the enforcement of the California poultry meat inspection regulations in plants which further process poultry products. Such plants include those which cut up and repack poultry meat as well as those which manufacture such items as poultry pies and tamales.

Prior to 1958, the assistant chief of the bureau also functioned as area supervisor of the 32-county north central area. It soon became apparent that both jobs could not be satisfactorily performed by one man, therefore, a new supervisory position, area supervisor of the north central area, was established and filled.

During 1958, the San Francisco office was moved from 50 Polk Street to Room A32, Ferry Building.

Group Training of Poultry Meat Inspectors

In accordance with provisions of the poultry inspection laws, which require the bureau to hold training courses for poultry meat inspectors from time to time, the bureau presented a lecture type program at 52 night meetings throughout the State; 1,195 poultry meat inspectors and other interested persons attended these meetings.

Insanitary procedures and equipment were observed by Bureau of Poultry Inspection inspectors in some poultry plants.

Approved conditions as shown above have replaced the outmoded methods formerly used by some processors.

Lectures were given on causes of spoilage, chilling methods, sanitary processing procedure and approved types of poultry processing equipment. Training on wholesomeness inspection was also given. Specimens of diseased poultry were displayed and discussed at each meeting.

Violations

During 1958, one formal investigational hearing, one informal investigational hearing, and seven informal hearings were held. All hearings involved the operation of plants in an unsanitary manner, or under unsanitary conditions. These plants had not complied with the requests of state inspectors to clean up or to correct their methods of operation.

Two hundred twenty-nine notifications of violations were issued, 75 for sanitation; 58, labeling; 4, unauthorized building or remodeling; 20, no plant license; 5, failure to keep forms as required; 67, no poultry meat inspector or inadequate inspection.

Construction

A total of 86 plans for construction of plants were approved, an increase of five over the total approved in 1957, indicating the industry's desire not only to comply with the building requirements of the California Poultry Meat Inspection Regulations, but also to supply the ever-increasing demand for poultry meat and products by providing larger and better facilities for the production and handling of poultry products.

Out-of-state Poultry

The poultry inspection laws provide for the approval of poultry inspection services in other states. The laws and regulations of out-of-state inspection services were analyzed. Those having requirements equal to those of California were approved by the director.

Since mandatory federal inspection of poultry meat shipped interstate became effective January 1, 1959, the approval of these inspection services by the director for chickens, turkeys, ducks, geese or guineas was discontinued.

Labeling

Prior approval by the bureau is required for the manner in which the poultry meat inspection legend is to be used by the plant. Labels bearing the inspection mark, and other printed matter, are also checked for misleading and deceptive statements before approval for their use is given. During 1958, 1,309 labels and sketches of proposed labels were received, and 710 were approved in final form.

DIVISION OF MARKETING

W. J. KUHRT, *Chief*

During 1958, efforts were continued to strengthen and to increase the efficiency of the several bureaus in the division. To this end, inservice training programs were carried out in the Bureaus of Market News and Fruit and Vegetable Standardization. Also, efforts were made during the year to improve performance and to increase efficiency through better organization and supervision.

During 1958, two bureau chiefs retired.

At the end of July, Niels I. Nielsen retired as Chief of the Bureau of Agricultural Statistics (Federal-State Crop Reporting Service), and was succeeded by W. Ward Henderson as chief, and Joe E. Mullin as assistant chief.

In December, William F. Allewelt retired as Chief of the Bureau of Shipping Point Inspection, and was succeeded by H. W. Peterson as chief, and Phillip V. Stay as assistant chief.

In the Bureau of Milk Control, William J. Hunt, Jr., resigned as assistant chief to take a position with the General Dairy Industry Committee of Southern California. His former position with the bureau as assistant chief was filled by Louis C. Schafer.

Detailed information with respect to the activities in each of the bureaus in the division is presented in the bureau reports.

Bureau of Agricultural Statistics

W. WARD HENDERSON, *Chief*
JOE E. MULLIN, *Assistant Chief*

During 1958 the bureau published approximately 375 reports relating to the State's agriculture and answered numerous individual requests for information. The data used in these reports was obtained primarily from growers, stockmen, hatcherymen, dealers, processors, warehousemen, merchants, and marketing organizations. Some data were obtained from other government agencies, and considerable assistance was received from California county agricultural commissioners.

Crop Production Value Up

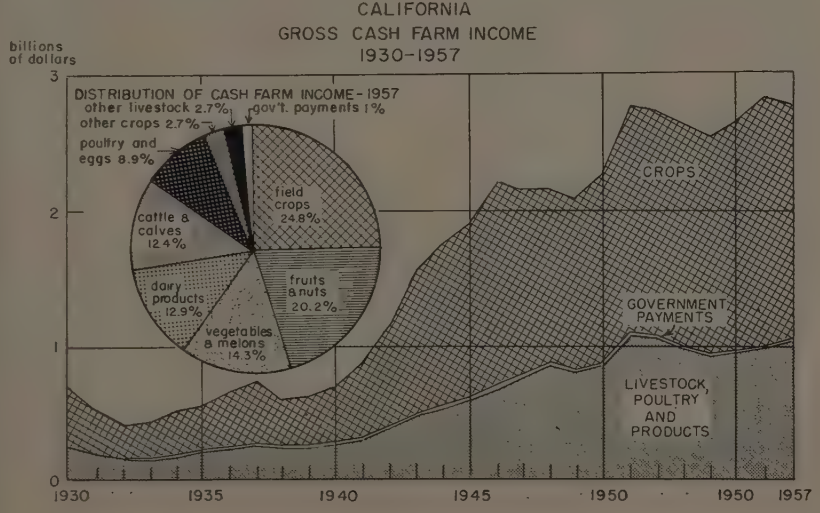
The total value of California's 1958 crop production exceeded that of 1957 in spite of a lower tonnage produced.

The production of all California crops in 1958 totaled 29,526,400 tons. This total has been exceeded only in 1956 and 1957. Production declines from last year were registered in both the field crop and fruit crop groups. Total vegetable tonnage increased sharply.

With higher prices received to date for many crops, the State's 1958 crop production is valued at $1,762,809,000, 1 percent above last year, 4 percent below the record year of 1956. These values do not include the value of livestock production, flowers, or nursery products, for which estimates are not yet available.

In comparison with last year, value of production showed increases in both the field and fruit crop groups but declined slightly in the vegetable crop group. It is notable that the value trend between 1957 and 1958 ran counter to the production trend in each group as well as for the total. The field crop and fruit groups went down in production and up in value, while the vegetable group increased production and declined in value.

While value of crop production is at a relatively high level, farmers' production expenses have also continued high and for the last few years have taken nearly two-thirds of the producer's dollar. (The data on the value of crop production do not represent income to farmers and are not comparable with cash receipts from farm marketings which are computed on a calendar year basis



and exclude products fed or used on the farm where grown).

The large 1958 crop tonnage was harvested from 8,545,110 acres. This acreage is only slightly above that of last year but is below every other year since 1951. While the 1958 acreage is 22 percent above the average acreage harvested from 1930 through 1939, the total volume of crop production has risen 85 percent since that period, reflecting largely the tremendous increases in yields per acre.

The abnormally heavy spring rainfall, with beneficial effects to some crops and harmful effects to others, was the outstanding feature of the 1958 crop season. Rainfall prior to January 1, 1958, was above normal in the northern part of the State, normal to slightly above in the central part, and below normal in Southern California. From late January on through early April, rainfall was frequent and, at times, continuous for several days. Most weather stations reported total rainfall for the season (July 1-June 30) at more than 50 percent above normal.

Winter and spring plantings were delayed and planting plans altered. Some acreage intended for winter planted grain was shifted to later crops, such as beans and milo. The effects on growing crops were varied. Dryland grain and ranges received the greatest benefits. Winter grain in poorly drained areas was affected by diseases and in extreme cases was drowned out. The wet weather played havoc with spraying and dusting schedules, and many fruit crops received inadequate protection. Most early blooming crops were pollinated poorly or pollinated fruit failed to develop properly. Most severely affected were almonds, apricots, cherries, and prunes, but plums, peaches, pears, and nectarines also suffered in some areas. On the other hand, grapes, walnuts, and olives yielded exceptionally well. The rains delayed planting of vegetable crops but had little effect on overall vegetable production.

The summer growing season was satisfactory for most field crops. Prolonged warm weather in August and September aided growth and hastened maturity of fall ripening field crops. Only bean yields were hurt by the continuous warm weather. A few light rains in September and October damaged some alfalfa seed and drying raisins and figs, but the remainder of the 1958 fall harvest season was remarkably dry and warm, and harvesting conditions were nearly ideal for most late crops. Killing frosts did not arrive until mid-November and their effect on 1958 crop production was negligible.

Record Yields for Cotton, Rice, and Hay

Field crop production in 1958 was 4 percent below the record volume of 1957 but was above all other years. Value of field crop production was 2 percent above 1957.

The total volume of field crops, estimated at 17,026,900 tons, was produced on 6,658,650 acres. The 1958 acreage was less than 1 percent above 1957. Yields per acre were above average for all field crops, except hops. New record yields were established for cotton, rice, and hay, while wheat and sorghum grain equaled previous highs. Barley, oats, corn, and flaxseed yields were below the 1957 record, and bean yields averaged above last year. Late spring potatoes were affected by adverse weather conditions. Sugar beet yields were lower than in 1957 because of the effects of wet spring weather, insects, and disease.

Value of field crop production rose to $806,478,000, an increase of 13 million dollars over 1957 but well below the record year of 1952. Cotton accounted for most of the increase over last year, although rice, beans, and grain sorghum added their contribution.

Fruit Crop Smallest Since 1940

Total 1958 tonnage of fruits and nuts dropped sharply from last year to the smallest production since 1940. However, the reduced tonnage brought higher prices for many crops, and the combined value rose 4 percent to $537,707,000.

Altogether, 6,244,500 tons of fruit and nuts were produced, a drop of 7 percent from 1957. Production increases over last year for grapes, olives, walnuts, apples, avocados, and figs were more than offset by declines in most other crops. Sharpest drops in production occurred in almonds, apricots, cherries, plums, and prunes, largely as a result of the rains during and after pollination. The clingstone peach crop was also sharply reduced, but this decrease was not so apparent since the 1957 crop was curtailed by a 16 percent "green drop" before harvest.

Grapes more than accounted for the increase over 1957 in value of fruit and nut crop production. Smaller increases in avocados, figs, grapefruit, Valencia oranges,

Bartlett pears, prunes, and walnuts were more than offset by decreases in value of other crops.

Bearing acreage of fruits and nuts is estimated at 1,198,360 acres for 1958. This is 1 percent higher than the previous year but one-fourth smaller than the peak acreage of 1929 and 22 percent below the 1930-39 average. However, the small 1958 acreage produced 17 percent more tonnage than the 1930-39 average production.

Vegetable Tonnage Up, Value Down

California's vegetable crop production (including melons and strawberries) rose well above 1957, but the value of this production was lower than that of the preceding year.

Total vegetable, melon, and strawberry production for 1958, at 6,255,000 tons, was 7 percent above that of 1957, second only to the record 1956 tonnage. The increase in tonnage is attributed to tomatoes for processing. This crop makes up 42 percent of the total vegetable volume. Production of broccoli, cabbage, cantaloups, and winter lettuce also increased sharply over last year but these were more than offset by reduced production of other crops in this group. Sharpest production drops took place in

TABLE 1

Harvested Acreage of Principal Crops in California

(Thousand acres)

Year	Field crops	Fruit and nut crops	Vegetable and melon crops	Total all crops
1930-39 average	4,972	1,529	511	7,012
1940-49 average	5,850	1,486	584	7,920
1950	6,375	1,385	604	8,364
1951	6,427	1,355	661	8,443
1952	6,776	1,326	633	8,735
1953	6,868	1,306	616	8,790
1954	6,887	1,281	620	8,788
1955	6,661	1,236	667	8,564
1956	6,664	1,198	717	8,579
1957	6,638	1,188	697	8,523
1958 preliminary	6,659	1,198	688	8,545

TABLE 2

Production of Principal Crops in California

(Thousand tons)

Year	Field crops	Fruit and nut crops	Vegetable and melon crops	Total all crops
1930-39 average	8,646	5,318	2,023	15,987
1940-49 average	11,446	7,033	3,445	21,924
1950	15,100	6,512	4,068	25,680
1951	13,075	7,769	5,390	26,234
1952	14,017	7,040	5,185	26,242
1953	15,008	6,814	4,968	26,790
1954	16,828	6,381	4,916	28,125
1955	15,952	7,393	5,614	28,959
1956	16,210	7,187	6,571	29,968
1957	17,662	6,684	5,822	30,168
1958 preliminary	17,027	6,244	6,255	29,526

TABLE 3

Value of Principal Crops in California

(Thousand dollars)

Year	Field crops	Fruit and nut crops	Vegetable and melon crops	Total all crops
1930-39 average	133,142	161,840	79,562	374,544
1940-49 average	438,071	456,532	231,336	1,125,939
1950	685,390	509,572	287,277	1,482,239
1951	895,938	505,646	381,330	1,782,914
1952	946,211	449,899	377,495	1,773,605
1953	778,648	458,066	369,428	1,606,142
1954	800,525	473,786	367,799	1,642,110
1955	744,086	541,219	408,568	1,693,873
1956	833,074	579,908	430,152	1,843,134
1957	793,391	518,679	429,236	1,741,306
1958 preliminary	806,478	537,507	418,624	1,762,609

TABLE 4

Cash Receipts From Farm Marketings of Livestock and Livestock Products in California
(Thousand dollars)

Year	Dairy products	Cattle and calves	Poultry and eggs	Other [1]	Total value
1930-39 average	75,908	46,992	46,831	24,869	194,600
1940-49 average	194,250	152,980	141,452	60,723	549,405
1950	237,042	305,755	222,047	82,820	847,664
1951	280,024	417,582	293,750	105,292	1,096,648
1952	320,706	353,973	275,603	89,706	1,039,988
1953	326,574	257,826	310,497	78,883	973,780
1954	300,853	274,914	250,307	79,446	905,520
1955	313,056	298,858	266,186	70,159	948,259
1956	331,471	326,567	263,575	69,696	991,309
1957	355,994	343,682	244,873	73,291	1,017,840

[1] Sheep and lambs, hogs, wool, honey, bees, beeswax, mohair, rabbits, horses, mules, and minks.

TABLE 5

All Livestock: Estimates of Numbers on Farms and Ranches, January 1st, California, 1956-1959
(Thousand head)

	1956	1957	1958	1959
All cattle and calves	3,863	3,870	3,738	3,978
Cattle on feed	489	496	398	504
Milk cows, two years plus	927	936	945	945
Sheep and lambs				
Stock animals	1,700	1,632	1,616	1,600
On feed	320	352	250	293
Hogs	452	438	442	416
Horses and mules	78	73	71	70
All chickens	29,063	28,994	29,277	31,397
All turkeys	1,194	1,609	1,548	1,502

spring, summer, and fall lettuce, green peas, spring processing spinach, and carrots.

The aggregate value of California's vegetable, melon, and strawberry crops is placed at $418,624,000, down 2 percent from last year. This is the third largest value year of record, being exceeded only by 1956 and 1957. The 15 million dollar increase in the value of the canning tomato crop over last year was more than offset by the decreases reflected in most other crops.

There were 688,100 acres of vegetables harvested in 1958, 1 percent below the 1957 total. The only other year with a larger acreage was 1956.

Not included in this report is the statistical data regarding production of cut flowers and nursery products during 1958. These data are being collected currently and will be summarized later. In 1957, sales of eight major nursery products in California amounted to $20,815,000, and sales of four important cut flowers accounted for an additional $14,136,000.

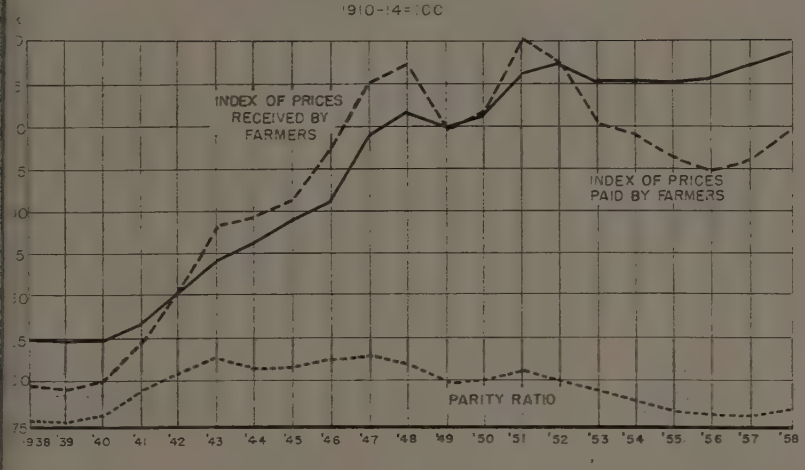
Milk Production Up

Milk production during 1958 was 1 percent below the record level of 1957, due to lower production per cow. The State's feedlot operators marketed 1.4 million cattle and calves during the year, about 1 percent more than in 1957. Total cattle and calf slaughter during 1958 was 16 percent below a year ago while the State's calf crop was 2 percent higher than in 1957. Sheep and lamb slaughter was about 9 percent under the previous year. The 1958 lamb crop was off by 2 percent due to a lower lambing percentage. Wool production was up 3 percent over 1957 as a result of heavier fleece weights. The pig crop for 1958 was 10 percent larger than a year earlier while commercial hog slaughter was down 9 percent. About 80 percent of the slaughter hogs came from out of State.

Record high egg production registered in 1958 was 6 percent above the previous record output of a year earlier. The number of layers on hand was about 4 percent above the 1957 level. Turkey growers produced 13.8 million birds in 1958, 6 percent under the record high established in 1957.

National Parity Ratio Up 3 Points in 1958

Along with the preceding statements summarizing the 1958 season in California, it is of interest to review the national index of prices paid by farmers, the index of prices


INDEXES OF PRICES
UNITED STATES, 1938-1958
1910-14=100
INDEX OF PRICES RECEIVED BY FARMERS
INDEX OF PRICES PAID BY FARMERS
PARITY RATIO
'38 '39 '40 '41 '42 '43 '44 '45 '46 '47 '48 '49 '50 '51 '52 '53 '54 '55 '56 '57 '58

ived by farmers, the parity ratio, and duction expenses as a percent of gross n income. The parity ratio is the ratio the prices received index to the prices l index. Corresponding indexes are not lable for California. However, the agri- ural situation in California generally fol- s that of the Nation.

uring 1958, the national index of prices l by farmers was revised, based upon n from the 1955 National Farm Expend- e Survey. The weight base period was ted from 1937-41 to 1955 and commodity erage expanded. The national index of es received by farmers was also revised keep pace with changing production pat- ns.

The index of prices paid by farmers was in 1958, an all time high. The prices ived index was 250 for the same period, substantially from 1957. This increase re than offset the rise in the prices paid ex and is evidence of an improved price ation for agriculture in general during 8.

n 1952, the prices paid index and the es received index were about in bal- e as indicated by the parity ratio of . Since 1952, the parity ratio steadily pped until 1958 making clear an in- asingly unfavorable price position for Nation's agriculture as a whole. The proved parity ratio of 85 for 1958 is the highest in four years but well below the war years.

Since 1953 production expenses for the Nation's farmers have moved upward and set a new record in 1957. Production expenses now take about two-thirds of gross income, whereas they were taking only about one-half during World War II and in the immediate post-war years. In 1957 production expenses absorbed an unusually high percentage of farm income because a decline in prices was accompanied by a drop in farm production. Production and prices both rose in 1958 and production expenses took a smaller percentage of gross farm income than in the preceding year.

Research Projects

Surveys to provide early season forecasts of production by physical counts and measurements were continued for cling-stone peaches, Bartlett pears, and grapes. The first full-scale objective measurement survey on walnuts was conducted in August and final plans were formulated to begin similar work on lemons in early 1959. These projects are financed jointly by the industry groups concerned and federal funds made available under provisions of the Federal Research and Marketing Act. They were undertaken at the request of industry groups in an effort to provide greater precision and reliability in the bu-

reau's forecasts of these crops. In the research phases of the projects, the bureau has the active technical assistance of staff members of the Giannini Foundation of Agricultural Economics of the University of California.

The fruit and nut acreage surveys were continued, using matching state and federal funds under the Research and Marketing Act, and were conducted in cooperation with the county agricultural commissioners. The information acquired in these surveys shows the acreage of fruits and nuts by kinds, varieties, age groups, and counties. The data provided in the annual bulletin is widely used by individuals, groups, and agencies involved in producing, processing, and marketing these crops.

The October 1st raisin lay survey was conducted under the most trying of circumstances. Two separate rains during the time the survey was in progress raised considerable doubt as to the extent of damage to the raisins on trays during the rain. It now appears that the estimate of total raisin tonnage laid on trays was quite close to the actual fact and that the estimate of standard raisins was also reasonably accurate. The raisin project is financed entirely by the Raisin Administrative Committee which operates the Federal Marketing Order.

Work on the cotton yield research project was continued. Experimental forecasts, based on objective fruit counts during the 1958 growing season, indicated the need for some modification of the forecasting equations developed for other states, but the results are promising. This is part of a study being conducted by the U. S. Crop Reporting Service in all cotton states.

New Developments

A program co-ordinating the statistical efforts of the bureau with those of the county agricultural commissioners was implemented in September with the appointment of a full-time statistician to the project. This program has as its objectives the encouragement of comparable annual reports of agricultural production between counties and the issuance of commodity reports by counties on a comparable basis with the state estimates of crop and livestock production and value. All county agricultural commissioners contacted are cooperating fully in this effort.

The weekly weather and crop bulletin issued jointly by this bureau and the State Climatologist of the U. S. Weather Bureau was inaugurated in January, 1958. The report formerly had been issued by the State Climatologist alone. Under the new cooperative arrangement, the Weather Bureau supplies weather data and a narrative weather summary and the bureau writes summary statements on the effects of weather on crops and livestock. This weekly review of crop and livestock conditions is based on regular reports to the bureau from the county agricultural commissioners, the county agricultural stabilization committees, some bank officials and market news reporters, and a few other individuals. The number of reporting weather stations covered by the bulletin has been increased to 44.

Several detailed surveys of strawberry growers were made during 1958 to obtain acreage and yield information by age of planting. These data have been requested by the strawberry industry as an aid in making their production and marketing plans. The bureau was assisted by the county agricultural commisisoners, the Bureau of Markets, and the Strawberry Advisory Board in the preparation and conduct of the survey. The latter agency provided the financing for the additional field work necessary.

A comprehensive survey of barley growers was made in mid-1958 to provide estimates of acreage, yield, and production of barley by varieties and districts in the State. This survey was performed at the request of and financed by a major segment of the barley industry and is indicative of the growing demand for detailed information.

reau of Fruit and Vegetable Standardization

. POULSEN, *Chief*
WHIPPLE, *Assistant Chief*

STANDARDIZATION ENFORCEMENT

, Nut, Vegetable and Honey Standards

ith the direction of the bureau, county ultural commissioners and their staffs rce standardization laws and the rules regulations issued under them. In 1958, county agricultural commissioners and staffs worked 36,825 man-days on fruit vegetable standardization. Inspections made of the equivalent of 257,990 cars of fruits, nuts and vegetables. These ections resulted in 9,910 rejections inving 743,221 packages, plus 1,030 tons of ous fruits and vegetables.

hirty-one violators were cited to court. 38 violators were required to show e why court action should not be taken st them.

reau representatives assisted freestone h, plum and cantaloupe advisory boards supervising inspection work of county ultural commissioners. This work was e by commissioners and their staffs under ract with the boards.

ighway inspection stations were maintd at five strategic locations within the e where truckloads of produce en route n producing areas to metropolitan cenwere inspected. At these stations in , the equivalent of 84,206 carloads of duce was passed because of clearance ificates, or was inspected at the stations. s work was an increase of 16 percent the previous year. Thirty thousand nty-four packages of fruits and vegees and 711 tons of melons were rejected. le 1 shows location and volume inred at these stations.

TABLE 1

tion	Total packages	Total tons	Est. total carloads[1]
mont	17,971,145	46,851	39,546
nterria	8,793,261	6	17,587
ic	7,036,549	17,254	15,400
rmore	2,103,963	12,360	5,158
ecco Pass	3,068,367	4,911	6,818

[1] Carload conversion figures of 500 packages used. Watermelons—13 tons = carload.

Bureau inspectors assigned to highway inspection stations also co-operated in the administration of marketing orders under state and federal laws. This service was performed at the Beaumont Inspection Station with reference to grapefruit; at the Carpinteria Inspection Station involving cantaloupes, peaches, lettuce and plums, and at the other stations within the State pertaining to cantaloupes, peaches and plums. This activity involved the checking of truckloads of these products to determine if evidence of compliance with a particular marketing order accompanied the load.

Bureau officers also assisted in the supervision of the standardization inspection work performed at border plant quarantine stations.

Emergency Standards and Department Regulations

Two emergency standards authorized under Section 790.5 were issued by the department. These pertained to a standard container for apples and size markings on containers of plums. A previously established emergency standard relating to the "color added process" on an experimental basis for Valencia oranges was amended. Regulations were issued by the department pertaining to fruit and vegetable standardization inspection, poultry and rabbit meat classes, and seed potato certification.

Inspecting bunch-packed asparagus for compliance with provisions of the Agricultural Code.

TABLE 2

First and Second Field Inspections, and Grading and Tagging Inspections by Acres and Months

	Jan.-Mar. *acres*	*April-June* *acres*	*July-Sept.* *acres*	*Oct.-Dec.* *acres*	*Total acres*
First field inspections	----	388	5,268	196	5,852
Second field inspections	----	30	4,421	1,200	5,621
Grading and tagging	1,255	381	294	1,993	3,923

Standardization Marketing Surveys

Three investigations were made, financed equally by funds received from the R. M. A. Section of the United States Department of Agriculture and from the State. These investigations pertained to the maturity of 15 varieties of California apples, maturity of 12 varieties of freestone peaches, and maturity of four grape varieties in Coachella Valley.

Egg Standardization

There were 72,983 lots of eggs inspected by county agricultural commissioners, their inspectors and members of the bureau.

There has been a steady increase in these inspections since 1948. In 1958, 572,783 cases of eggs were inspected, as compared to the 133,283 cases in 1948.

In 1958, 3,338 violation notices were issued, rejecting 667,498 dozens of eggs, 26 percent more than in the previous year. These eggs were rejected as mislabeled as to quality or weight, as lacking required markings, or containing inedible eggs.

Poultry Meat Classification

A total of 18,619 inspections were made by county agricultural commissioners and bureau representatives in retail stores and poultry processing plants to determine compliance with the classification markings required by the law. Carcasses and packages of cut-up poultry meat inspected totaled 5,123,279, of which 117,651 units were rejected. Three hundred thirty-one violation notices were issued.

Seed Potato Certification

Seed potato certification assures California growers of a supply of disease-free stocks of potato seed which will produce more tons per acre of high quality commercial potatoes.

Inspections of potato plants in fields, and of tubers being packed, were made in many counties. Varieties and acreages of potatoes entered and accepted for certification in 1958 were: White Rose, 3,586; Netted Gem, 1,487; Pontiac, 182; Kennebec, 566; Dazoc, 13; and Red Lasoda, 18; total, 5,852 acres.

Applications and first field inspections totaled 5,852 acres, an increase of 5 percent over the previous year. While there was a small increase in acreage, only 231 acres were withdrawn or rejected, compared to 624 acres withdrawn or rejected in the previous year.

Two test plots were maintained, at Half Moon Bay and at Oceanside. At the Half Moon Bay test plot, 374 samples were grown and tested in the spring. These samples were from potato seed sources to be planted by growers and entered for certification. At the Oceanside test plot in the winter, 540 samples from seed potatoes grown in 1958, were grown and tested to determine freedom from diseases and principally for eligibility as "Foundation Stock Seed Potatoes." This is the top purity classification.

Canning Tomato Inspection

The Agricultural Code requires that every load of tomatoes delivered for canning purposes must be inspected, and that a certificate shall be issued if the load meets the quality requirements. In 1958, 2,674,073 tons of canning tomatoes were inspected and passed, an increase of 28 percent over the previous year; 54,772 tons were inspected and rejected, an increase in rejections of 4 percent over 1957.

Inspections were conducted at 181 stations; 59 of these stations were located at canneries, and 122 at field assembly stations

ureau of Markets

. BRAUN, *Chief*
BENNETT, *Assistant Chief*

he major portion of the time of the eau's staff was devoted to administration enforcement of self-help marketing grams. Food trade marketing surveys activities relating to the formulation of marketing orders or the amendment of ing marketing orders required a conrable amount of time.

he new California Poultry Promotion , passed by the Legislature in 1958, be- e Chapter 19, Division 6 of the Agricul- l Code and was assigned to the Bureau Markets. Operations under the law were ect to a referendum of poultry produc- A list was established and the referen- was conducted. It failed to carry, and sequently, the law is currently inactive.

USTRY SELF-HELP MARKETING OGRAMS

ndustry self-help marketing programs are mulated by the agricultural industry con- ued, and are administered by an industry isory board, with the department giving eral assistance and supervision in the ad- istration of the program. Each industry vides the funds necessary to defray the enses of operation of its program; they not borne by general tax funds. The artment makes collections and expendi- es on behalf of the various programs and es appropriate accounting.

. total of 31 industry self-help programs in operation in 1958; 28 of which oper- l under the authority of the California rketing Act of 1937; 2 under the author- of the Agricultural Producers Marketing ; and one under a separate statute. These grams, together with indicated major vities and effective dates, are listed as ows:

. Programs operating under the authority of the lfornia Marketing Act:

Commodity	*Main Activities—1958*
Early apples	Grade regulations; size regulations; volume regulations.
Asparagus (fresh)	Research and survey activities.
Asparagus (processing)	Research and survey activities.
Bush berries	Advertising and sales promotion.
Cantaloupes	Grade, size, pack and container regulations; surplus control; major amendment to authorize advertising and sales promotion.
Dried figs and dried fig products	Diversion of substandard figs; advertising and sales promotion.
Grapefruit	Minimum grade and size regulations; advertising and sales promotion.
Honey, extracted	Advertising and sales promotion.
Dry-pack lettuce	Grade and size regulations; quantity regulations.
Standard lima beans	Production, processing, and distribution research.
Olallie berries	Advertising and sales promotion.
Canned olives	Advertising and sales promotion; market stabilization.
Cling peaches (canning and freezing)	Surplus removal; quality regulations; advertising and sales promotion; research.
Fresh peaches	Grade, size, maturity, and pack regulations; sales promotion.
Fresh Bartlett pears	Grade and size regulations.
Bartlett pear promotion	Sales promotion and market development.
Canning fall and winter pears	Grade regulations.
Fresh fall and winter pears	Advertising and sales promotion; grade and size limitations.
Hardy pears, promotion	Sales promotion.
Plums (fresh)	Grade, size, maturity, and pack regulations; sales promotion.
Potatoes, Delta white	Grade, size, and maturity regulations; quantity regulations.
Potatoes, long white	Grade, size, and maturity regulations; advertising and sales promotion; research survey studies.
Poultry and turkey improvement	Pullorum and fowl typhoid disease control.
Dried prunes	Advertising and sales promotion.
Raisins	Advertising and sales promotion.
Strawberries	Advertising and trade promotion; production research.
Turkey promotion	Sales promotion.
Wine	Advertising and sales promotion.

B. Programs operating under the authority of the Agricultural Producers Marketing Act (as amended)

Commodity	*Main Activities—1958*
Bartlett pears, canning	Grade, size requirements; trade stimulation.
Brussels sprouts	Quantity limitations for freezing only.

C. Promotion programs under specific acts of the Legislature

California Beef	Promotion of beef and beef products.

Summary facts relating to these 31 programs in operation are:

Number of producers affected (including beef producers, estimated at 40,000)	76,500
Number of handlers affected	3,150
Producer value of products affected (including California beef, with a live sales value of $344,000,000)	$773,712,000
Total assessments collected	$8,703,000

Amendments

During 1958, eight marketing orders were amended. Seven of these amendments, namely those dealing with: fresh asparagus, processing asparagus, dry-pack lettuce, canned olives, cling peaches, poultry and turkey improvement, and raisins, were minor. The eighth, a major amendment relating to cantaloupes, added authorizations for advertising, sales promotion, research and survey studies, and clarified provisions relating to volume regulations.

New Programs

Two new programs were made effective during 1958, and another was in the final stages of formulation as the calendar year of 1958 closed.

A Marketing Program for Brussels Sprouts for freezing was promulgated and made effective pursuant to the Agricultural Producers Marketing Law. It authorizes volume regulations for one marketing season only. However, the industry has requested that the program be amended so it may be continuous and that authorization be added for educational and trade stimulation activities. Procedural steps to amend will be taken early in 1959.

A Marketing Order for Olallie Berries became effective August 7, 1958. Olallie berries are a bush berry variety similar to blackberries. Due to the fact that the delivery season had been completed prior to the time the order was made effective, no official assessment rate could be established. The order is limited to advertising and trade promotion, and is operating in a limited manner with funds contributed voluntarily. Full operations are contemplated for 1959.

After the 1958-1959 season had begu and just prior to the Christmas holida season, a committee of producers and han dlers of winter head lettuce requested th formulation of a marketing order at th earliest possible time. The committee ha recognized that the industry had entere a season of periodic oversupplies and tha orderly volume regulations should be ap plied to prevent or reduce serious market ing losses. Even though considerable oppo sition was voiced, the industry generall supported the formulation of a marketin order at a public hearing held upon a Pro posed Marketing Order for Winter Hea Lettuce. At the end of December, th marketing order was issued for the writte assent of producers and handlers. (It be came effective January 14, 1959, and wen into operation immediately.)

Auditing

The bureau makes administrative audits o the records of handlers of the commodi ties regulated by marketing programs t determine the status of collection of assess ments. The bureau audits the records o all such handlers following the first year o operation of a marketing program. The ex tent of subsequent audits is determine from experience gained relative to the gen eral accuracy of, and compliance with assessment payments. Usually, audits ar made each year of not less than 15 percen of the industry by number and volume Investigative audits are made in all case where there is reason to believe that under payment may have occurred. The bureau also undertakes audits and reviews th activities conducted by the program advis ory boards in handling administrative obli gations. Special studies were made durin 1958 with respect to costs of grading clin peaches and the ratio of pack to receipt by packers of Brussels sprouts and relate information.

Enforcement

The enforcement section of the bureau devotes its time and attention to enforcing the provisions of marketing orders and pro grams, including volume, grade and size regulations, and the collection of delinquen assessments. The work involves checking complaints, handling noncompliance reports supervising the disposition of commercia lots of the commodity under noncompliance hold orders, accomplishing collection o overdue assessments and preparing cases fo

eral to the Attorney General's Office
court action appears necessary, and
ing the Office of the Attorney General
e litigation proceedings.

pervision of inspection service per-
ed by county agricultural commission-
for advisory boards was exercised by
Bureau of Fruit and Vegetable Stand-
ation in the case of fresh peaches,
plums and cantaloupes. This supervi-
has proven very helpful in obtaining
ormity and general compliance with the
lations.

ost encouraging progress is being made
ard statewide uniformity of treatment
violations, of supervision of inspection
cedures, and of appropriate followup
on. As a followup procedure, letters of
onition have proved effective in reduc-
noncompliance, and centralized review
been helpful in keeping compliance
s coordinated.

long-standing bankruptcy action under
Wine Marketing Order was concluded
958, the bureau obtaining a settlement
pproximately $14,500, almost 100 percent
assessments owing, on the basis that
e claims were in the nature of a tax and
tled to priority.

wo adverse decisions, both relating to
g peaches, were handed down by the
rts. A Sutter County jury cleared a
ducer of deceptive lot charges and the
ellate court excused a processor from
ment of the value of a quantity of cling
ches which the processor had failed to
ert as required by his certificates.

OD TRADE SURVEYS FOR RKET EXPANSION

The bureau served a number of California
icultural industries in 1958, under pro-
ons of the Federal Research and Mar-
ing Act. Survey and analysis work was
formed for the strawberry, boysenberry,
sh peach and fresh plum industries. Con-
tative and advisory assistance was ex-
ded to those concerned with pears (can-
g), cling peaches (canning), honey and
keys, and to a commercial air-freight line
ving agriculture in general.

The primary objective of the bureau
der RMA is to help increase sales and
and markets for California agricultural
oducts. To accomplish this objective need
r new products or product improvements,
tter marketing practices and opportunities for undertaking or improving sales promotional activities are sought. Findings are then analyzed and courses of remedial or constructive action are recommended to the industries concerned. Details of 1958 activity are briefly as follows:

Honey. The honey industry of California and other states was helped through assisting representatives of the U. S. Department of Agriculture and the University of California in the planning of a nationwide honey marketing study. The assistance consisted of furnishing background information and advice on planning the projected study.

Turkeys. A manufacturer of packaging material used by turkey processors was given background information with respect to a projected study on how it could better meet the needs of the turkey industry. The California Turkey Advisory Board was assisted in planning a marketing-expansion study.

Bush Berries. The California bush berry industry was given marketing assistance in the form of information and recommendations obtained in a recent food trade survey. The survey had to do with the expanding of out-of-state sales by regions and by classes of outlets. It is being used by the industry as a guide in developing its promotional plans, and in obtaining maximum benefits from its promotional activities.

Strawberries. The California strawberry industry was assisted by furnishing information and developing recommendations with respect to ways and means of expanding the market for California fresh and frozen strawberries. A comprehensive report will be distributed to all producers, shippers, and processors.

Fresh Peaches and Fresh Plums. Major objectives were completed on a marketing survey which was designed to strengthen the promotional program of the fresh peach and fresh plum industries. Findings, conclusions and recommendations were presented orally in a series of meetings with the advisory boards of the two industries, and those for peaches were published in a pamphlet entitled, "Increasing the Sale of Fresh Peaches in California," and distributed among approximately 2,700 growers, handlers, and allied interests of the fresh peach industry. Tangible results of the work thus far have been the adoption by industry of recommended objectives, realignment of

promotional plans, and a re-examination of the qualifications of the promotional agency to which the work was delegated.

Canning Bartlett Pears. Assistance was given the program committee of the Marketing Order for Canning Bartlett Pears; in the planning and preparatory work of an informal marketing investigation undertaken by industry representatives; in the development of regional sales performance indexes which disclosed marketing potentials in New England, southwestern and southeastern regions; and in familiarizing the Program Committee with essential promotional fundamentals.

Prunes. Continued use was made of the survey report, "Merchandising California Prunes in Retail Stores," completed for the Prune Advisory Board in 1956. In 1958, contents were summarized by the Advisory Board and reproduced in a lithobrochure, at its own expense, for use by the board's merchandising representatives, and for distribution among retail grocers.

Promotional Fundamentals. Because of increasing emphasis upon the promotional approach as a means of stabilizing the supply-demand relationships for agricultural products, and because of unfamiliarity among agricultural producers with advertising and other promotional procedures, a reference manual of promotional fundamentals is being prepared for use by advisory boards. Material for the manual has been collected from various sources and is now being assembled for reproduction in suitable form.

SPECIAL LAWS

A. California Beef Council Law

The California Beef Council completed its first calendar year of operation in 1958. Beef was tied in with the coming of major league baseball to Los Angeles and San Francisco by a series of billboards from Oregon to Mexico. Beef promotion booths were set up at all the major fairs in the State and operated in cooperation with the California Cow Belles organization. A beef recipe program was operated as a service to retailers.

A series of Bar-B-Ques was conducted at different points throughout the State to emphasize the utilization of lower-priced cuts of beef. A food page publicity program in cooperation with newspaper food editors was very successfully carried out by the public relations director. Cookin schools were also sponsored in cooperatio with several utility companies.

Income for the Beef Council, based on voluntary collection of 10 cents per head o cattle marketed, totaled over $140,000 fo 1958. The Council budgeted 20 percent o this amount as a reserve for an emergency marketing situation. The remainder was allotted to its own activities and in support of the programs of the National Livestock and Meat Board and of the National Beef Council.

B. California Poultry Promotion Council

The California Poultry Promotion Council Law went into effect on July 23, 1958. Under this law, the Director of Agriculture was required to assemble a list of producers of poultry in the State and to conduct a referendum among these producers to determine if they wished to have a promotion program instituted for California poultry products. For this purpose, the Legislature appropriated $10,000.

The promotion program failed to carry an affirmative vote of 51 percent of the total list of producers. Therefore, the department took no further action to set up a Poultry Promotion Council.

GENERAL MARKETING SERVICE

Over the years the Bureau of Markets has served as a source of information and assistance to producers, processors, and distributors of California agricultural commodities in connection with general marketing problems. Requests for this service are frequently received from groups interested in the formulation of new cooperative marketing associations, or the development of new industry self-help marketing programs.

Also, numerous requests are received from individuals or groups seeking information or suggestions concerning general marketing problems, or desiring participation of bureau personnel in meetings of industry groups. Officials and industry groups in other states and in foreign countries frequently seek, by correspondence or personal visit, to obtain information about California marketing programs and the organization and operation of marketing agencies in California.

The general marketing service function of the Bureau of Markets has increased substantially during the past several years, par-

cularly with respect to those commodity roups requesting information with respect o self-help marketing programs. Expenses f the bureau in connection with such assistance are paid from general fund sources o the point that the commodity group requests that a public hearing be held upon a marketing program. At the time of the request the commodity group is required to make a deposit to meet the costs of the department in connection with the hearing and the other procedural steps.

Bureau of Market Enforcement

C. HARLAN, *Chief*
S. CANN, *Assistant Chief*

ART I

Under the Produce Dealers Act, handlers f farm produce must be licensed in order o obtain farm products from California roducers.

Dealers are licensed to purchase farm roducts on a credit basis, and are bonded or $2,000.

Commission merchants are licensed to hanle farm products on consignment, and are onded for $5,000.

Brokers, licensed only to negotiate transctions involving the purchase and sale of arm products, are not permitted to solicit onsignments, and are not bonded.

Cash buyers are licensed to purchase farm roducts only by payment in cash, and may ot buy on credit or issue checks, drafts, or ther commercial paper in payment. Cash uyers are not bonded.

Agents' licenses are required by anyone epresenting licensees in the handling of arm products.

The Processors Law requires anyone engaged in the business of purchasing farm roducts from California producers for the urpose of manufacture or processing and who sells the finished products in dried, anned, extracted, fermented, distilled, froen, or other processed form, to be licensed s processor.

A processor who buys on credit, or on a eferred payment basis, is bonded for $5,000.

An unbonded processor is required to ake payment for farm products in cash, nd may not buy on credit or make payent on any deferred basis.

The work of the bureau involves investiations of complaints filed by producers gainst licensees, as well as a continuing supervision of agricultural and shipping centers to insure that persons engaged in handling farm products are properly licensed and bonded, and that general compliance with the statutes is maintained.

Controversies arising between producers and handlers are adjusted by the bureau with a minimum of expense to the parties involved.

Controls exercised by the bureau have made difficult the operation of unscrupulous handlers who not only attempt to defraud the producer but who also impose unfair competitive conditions upon those licensees who operate legally.

Hearings are held upon verified complaints filed by producers, and when a violation of the statute involved has been determined, a licensee may be subjected to the suspension or revocation of license, or to the imposition of probationary terms and conditions.

The bureau maintains offices at Fresno, Sacramento, Los Angeles and San Francisco. Producers may file their complaints by telephone, telegraph, letter, or in person at any of these offices. Adjustments and settlements of controversies generally are secured either by investigation or informal conference.

The bureau is supported and maintained by license fees. No charge is made for the various services performed for producers.

During 1958 the bureau recovered for producers under the Produce Dealers Act $389,214.61, in which 790 producers participated. Under the Processors Law, recoveries amounted to $113,006.33, in which 65 producers participated. The total amount involved under both statutes was $502,-220.94, in which 855 producers participated.

PART II. DETAILS OF FUNCTIONAL ACTIVITIES

Produce Dealers Act

On January 1, 1958, open complaints totaled 579. During the year, 62 complaints were reopened, 610 new complaints were received, and 1,042 complaints closed, leaving 209 complaints open as of January 1, 1959. One hundred sixty-one administrative hearings were held; disciplinary action resulted in 27 licenses revoked, 17 licenses suspended, 29 applications refused and denied, and 8 licenses reinstated.

Forty-one criminal prosecutions of unlicensed dealers resulted in 8 jail sentences served, 12 fines assessed, and 8 suspended sentences and probation granted.

A total of $389,214.61 was recovered for 790 complainants during the year.

Processors Law

On January 1, 1958, open complaints totaled 55. During the year, 2 complaints were reopened, 95 complaints were received, and 86 complaints were closed, leaving 66 complaints open as of January 1, 1959. Administrative hearings totaled 16; disciplinary action resulted in 1 license revoked, 3 licenses suspended, 1 application refused and denied, and 2 licenses reinstated.

A total of $113,006.33 was recovered for 65 compainants during the year.

As a summary of all activities under both laws, 634 complaints were open on January 1, 1958; 705 new complaints were received, and 64 were reopened; 1,128 were closed, leaving 275 complaints open on January 1, 1959. The sum of $502,220.94 was recovered for 855 complainants; of this amount, $81,170.63 was recovered as the result of 50 demands made on the bonds of dealers, commission merchants, and processors.

The bureau issued 14,557 licenses: 12,299 under the Produce Dealers Act to dealers, brokers, commission merchants, cash buyers, and agents, and 2,258 to processors and agents. On these licenses, administrative hearings were held in 177 cases, resulting in 28 revocations, 20 suspensions, 30 denials of applications, and 10 reinstatements.

A condensed summary of the activities of the bureau in the administration of the regulatory statutes assigned to it for a 32-year period, 1927 to 1958, inclusive, shows: 24,496 complaints handled, 4,296 administrative hearings held, 777 licenses revoked, 618 licenses denied, and 1,174 criminal prosecutions. As a net result of all activities, the bureau during the 32-year period recovered for growers a total of $13,646,900.

Bureau of Market News

MAX K. JOHNSON, *Chief*
G. HILLIS, *Assistant Chief*

The Bureau of Market News reports on dairy products, poultry and eggs; livestock, meats, and wool; hay, grain, feeds, and beans; fresh market fruits and vegetables; and miscellaneous commodities, including dried fruits, honey, and wine. Major California commodities not reported by the bureau include cotton, nuts, and most processing items.

The bureau's function is to collect and disseminate impartial, accurate, useful, and timely information for the benefit of the public.

Market reporters collect and disseminate timely market information in California's two major terminal markets and in the major producing areas of the State. The mimeographed report serves as the principal method of dissemination. Newspapers, press and radio wire services, radio, television, personal and telephone contact and recorded telephone messages are additional media. Rapid transmission of current market information between offices within the State and throughout the Country is accomplished by state and federal leased wire systems interconnecting all offices.

The bureau's reports cover virtually the entire marketing field. The reports carry price, market condition, statistical, and other information affecting the marketing of agricultural products. Dairy and poultry products are reported from Los Angeles, San Francisco, and Fresno; livestock, meats and wool from Los Angeles, San Francisco, Stockton, Visalia, and El Centro; hay, grain, feeds, and beans from Los Angeles, San Francisco, Sacramento, Fresno, and El Centro; fresh fruits and vegetables from Los Angeles, San Francisco, Salinas, Santa Maria, El Centro, Blythe, Indio, Bakersfield, Fresno, Stockton, Lodi, and Sacramento; and miscellaneous commodities from Los Angeles, San Francisco, Sacramento, Fresno, and Salinas.

Operations of the Market News Service continued generally the same as in 1957 on well established lines. However, a number of changes or modifications were placed in effect during 1958 to keep the service abreast of, or to meet, changing marketing methods or conditions; to improve the value of the service; to increase efficiency; and to reduce costs.

Many of the modifications in operating procedure revolved around economy in production and mailing of mimeographed reports. The format and content of certain reports were altered so that frequency of mailings to some users could be reduced. Publication of dairy and poultry statistical reports was consolidated at San Francisco. Mailing lists were reorganized to permit mailing of reports to readers only during that part of the season when reports were of greatest value to the recipient.

As a result of these efforts, mailings of mimeographed reports from California's 25 Market News offices were reduced from nearly 6,400,000 pieces in 1957 to 5,600,000 in 1958, a reduction of 12 percent. The bureau encouraged increased dissemination of market news information through radio, newspapers, and other private media. This channeled market information to expanded audiences at very little or no cost to the State. Thus, dissemination remained at a high level despite the reduction in mailings.

Other modifications were made in operating procedures to increase the effectiveness of the service or to effectuate economies without impairing service. Consolidation of certain seasonal summary reports put all information pertaining to the commodity into one document. Reporting of San Francisco and Oakland fruit and vegetable unloads was combined because of changes in marketing and distribution in the Bay area. The reporting of outbound and inbound

truck shipments of fruits, vegetables, and eggs was made a State responsibility to provide more efficient use of personnel and better supervision of the project. Cost continued to be borne by United States Department of Agriculture through reimbursement to the State. Collection of truck movement data was continued or expanded on a local level for several major commodities.

The bureau also undertook three new major reporting projects as a result of industry request and legislative authorization. Funds were provided to report the Coachella Valley grape market, the Blythe melon market, and the San Joaquin Valley and Southern California fryer chicken markets on a volume-price basis.

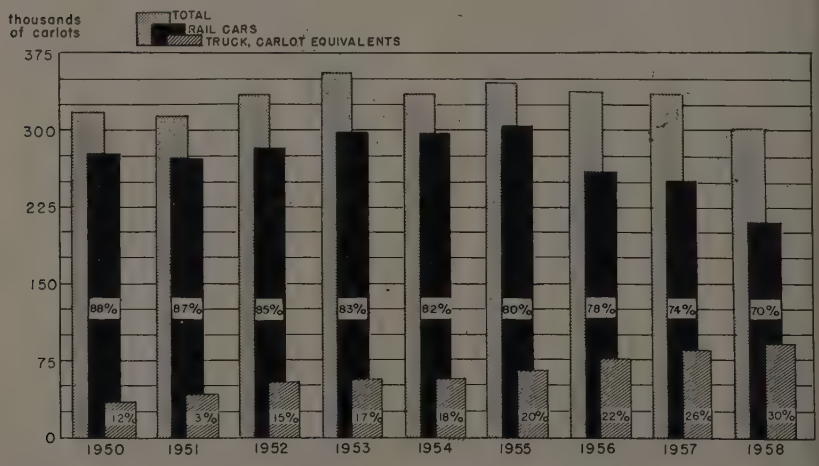
A seasonal office was opened at Indio during the active trading season for desert grapes. Reports were issued on shipping point and terminal market prices, shipments, and other market information during May-July. Similar information for melons was made available at Blythe from June-July.

Volume-price reporting of live fryers was begun at Fresno and Los Angeles. While prices for fryers have been issued in the past, these quotations showed only price range. Under volume-price reporting, the total volume of fryers marketed and the percentage traded at each price is reported daily. This type of report gives the industry a better gauge of the market in that it pinpoints the level at which trading is heaviest. Though volume-price reporting has not started in the north San Francisco Bay, reporting of fryer prices was extended to include this area.

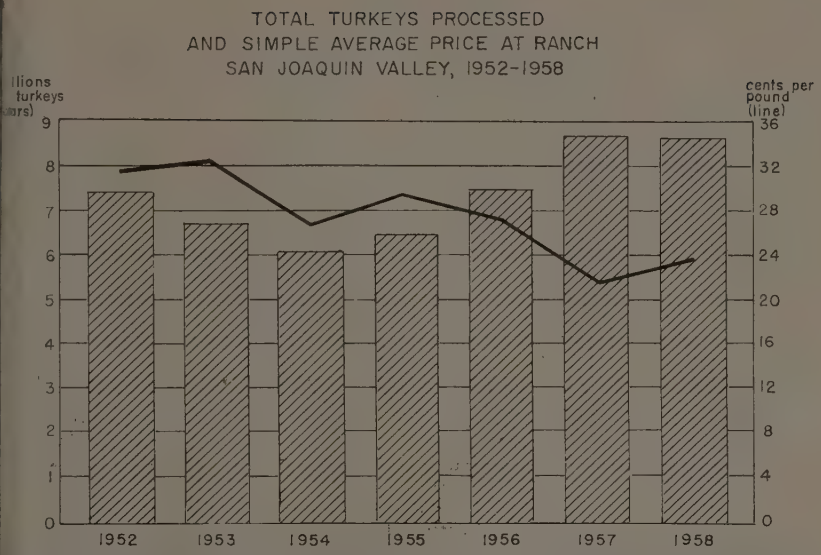
To keep abreast of the trend toward increased trading at country points, the bureau expanded its coverage of sales outside terminal markets. F.o.b. reporting of grapes in the Bakersfield area was extended beyond the fresh market season to include trading in storage stock late in the year. Coverage of the f.o.b. market for asparagus during March and April in the Delta district also was added.

In line with the department's inservice training and the work improvement policies, the bureau participated in or conducted three commodity workshop conferences. Conferences were conducted over the Memorial Day weekend, May 30-June 1 for fresh fruit and vegetable personnel; November 21 for hay reporters; and the weekend of November 22-23 for dairy and poultry personnel. The conferences were attended by California and co-operating United States Department of Agriculture

RAIL SHIPMENTS, TRUCK PASSINGS AND COMBINED TOTALS FOR CALIFORNIA FRUITS AND VEGETABLES



While most California fresh fruits and vegetables are shipped to distant markets by rail, a steadily increasing amount is moved by trucks. The chart shows that the increase in truck shipments has accelerated in the past few years.



is chart shows that average prices for turkeys in the San Joaquin Valley declined during a period when ces for most commodities advanced. The lower prices reflect increased production and processing, greater integration and the trend toward large-scale operations in the turkey indusrty.

arketing specialists and administrative per-nnel. Objectives of the conferences were: improve the quality of the service in neral; to promote co-ordination and effi-ncy of work effort; to improve work-g relationships and permit interchange of eas; to resolve common problems; to re-e and improve reporting techniques; and learn of new developments in the mar-ting field.

Major marketing changes and trends affecting the Market News Service brought out by discussion included: the expansion of cold storage facilities throughout the State; expansion of mixed car business, catering to smaller markets; a decrease in the number of buying brokers; increased direct buying by processors or retail outlets; increased emphasis on quality; and the spread of integration to more industries.

Bureau of Milk Control

D. A. WEINLAND, *Chief*
L. C. SCHAFER, *Assistant Chief*

During 1958, the bureau held 33 public hearings, 7 for considering proposed amendments to stabilization and marketing plans, and 26 for the purpose of considering proposed amendments to minimum wholesale and minimum retail prices for fluid milk.

As a result of information obtained at 4 consolidated producer hearings covering 32 marketing areas, there was revision of maximum charges provided in stabilization and marketing plans for fluid milk that may be deducted by distributors from producers for market milk handled through country plants for shipment to other marketing areas for fluid milk purposes. Country plants handle large volumes of fluid milk, and detailed cost studies were made prior to the hearings on a number of these plant operations by bureau auditors. The maximum deductions permitted in stabilization and marketing plans for market milk handled through these country plants were reduced from 27 cents per hundredweight to 15 cents per hundredweight for milk received in bulk tanks, and to 26 cents per hundredweight for milk received in 10-gallon containers. For milk separated at the country plant for shipment as bulk fluid cream, the maximum charge was reduced from 6 cents per pound of fat to 3.5 cents per pound fat when the whole milk is received in bulk tanks, and to 5.7 cents per pound fat when the whole milk is received in 10-gallon containers.

Public hearings held during 1958 were also for the purpose of considering proposed amendments to the stabilization and marketing plans of 20 marketing areas in the State to conform with 1957 amendments to the Agricultural Code. Among the amendments to the Code was the addition of Section 4230.5 to Chapter 17, which provides that the prices that distributors must pay producers for Class 2 and Class 3 milk shall be no less than the manufacturing prices paid f.o.b. ranch by processors whose paying prices are considered in establishing Class 2 and Class 3 prices. This amendment also provides that Class 2 and Class 3 prices established by the director may be lower than the statutory requirement if the director finds that the establishment of such lower prices is necessary to effectuate the purposes and policies of the act.

Following a public hearing covering the Fresno and Madera - Merced Marketing Areas, stabilization and marketing plans for these areas were revised to incorporate 1957 amendments. These amendments permit fluid milk distributors to pool milk under contract to such distributors, for producer payment purposes, whether such milk is actually received at the processing plant or whether it is diverted directly to milk products plants for manufacturing purposes. This provision will tend to effectuate more economical methods of marketing fluid milk in excess of Class 1, 2 and 3 usage at the plant under contract for such milk.

The establishment of resale price zones within the Shasta-Tehama Marketing Area, in 1958, represented the first use of this provision of the 1957 Legislature.

In general, minimum consumer prices for fluid milk have increased in the marketing areas where the 26 resale price hearings were held. In Los Angeles County, Orange County and San Bernardino-Riverside Marketing Areas, minimum prices for fluid cream and fluid nonfat milk were increased, and also a quantity discount plan was placed in effect at the retail home-delivery level in place of the delivery charge plan previously in effect. In the Fresno Marketing Area, minimum prices for premium grades of fluid milk were established by a formula which provides that the basic price be increased one cent for each additional four-tenths increase in milk fat test. The increases in prices were due to increases in the cost of labor and supplies used in processing and distributing dairy products. However, increased efficiency in the processing and distribution of milk resulting from quantity

iscounts and increased sales has served to ffset some increases in costs.

Consumers purchasing milk in California emain in a favorable position relative to any areas of the United States. Table 1 ows a comparison of retail milk prices etween California cities and cities through- ut the United States.

TABLE 1

Average Retail Prices of Fluid Milk Sold at Grocery Stores and Delivered to Homes 20 Cities, United States, May and October, 1958

(Cents per quart)

	Home-delivered	*Grocery stores*
New York, N.Y.,-N.E. N.J.	30.00	26.55
Boston, Mass.	28.25	20.75
Philadelphia, Pa.	27.90	28.25
Pittsburgh, Pa.	27.50	26.85
Scranton, Pa.	27.50	26.70
Atlanta, Ga.	27.40	27.50
Washington, D. C.	27.25	25.55
Chicago, Ill.	27.15	21.70
Baltimore, Md.	27.00	26.35
Houston, Texas	26.50	23.30
Cincinnati, Ohio	24.90	24.40
SAN FRANCISCO, CALIF.	24.65	23.00
Portland, Ore.	24.50	22.65
LOS ANGELES, CALIF.	23.90	21.50
Seattle, Wash.	23.50	22.80
Detroit, Mich.	23.10	22.80
Cleveland, Ohio	22.90	20.10
St. Louis, Mo.	22.15	20.45
Kansas City, Mo.	21.15	19.10
Minneapolis-St. Paul, Minn.	18.30	17.60
20-city average	25.275	23.895
United States, 43-city average	25.15	23.70

Source of data:
United States Department of Labor, Bureau of Labor Statistics, Retail Food Prices by Cities.

All of the milk marketing orders in the State were revised also to make more definite the basis of determining minimum consumer prices as related to refunds of bottle deposits. The amendments relating to bottle deposit refunds specify that the minimum price provisions limit the amount of the refund for returned bottles to the amount charged for such bottles.

Following a referendum conducted among fluid milk producers in the San Diego County Marketing Area, the sales stimulation and consumer educational program instituted by the producers of that area in 1955 was extended for a 3-year period. These programs are for the purpose of increasing the consumption of fluid milk and fluid cream, or other dairy products, through the media of advertising without reference to any particular brand or trade names. The San Diego Area program is supported by producers through assessments of 5 mills per pound of milk fat levied on all milk fat contained in fluid milk produced for sale or use within the San Diego County Marketing Area. Similar programs were included in the stabilization and marketing plans for the Alameda-Contra Costa and Sacramento Marketing Areas.

Approximately 484 million gallons of fluid milk were sold in California during 1958, equivalent to 131.2 quarts per person in the resident population of the State. Although this total was well below the record set in 1956, and nearly equalled in 1957, it was higher than for other years.

The population of California has been estimated to have increased approximately 4.0 percent between 1957 and 1958. Sales of fluid milk in the State increased about 1.3 percent; sales of fluid skim milk, 7.3 percent; and sales of fluid cream, 1.0 percent. Sales of flavored milk drink declined 5.1 percent and sales of half-and-half declined 4.2 percent. The increased sales of fluid cream resulted from a 14-percent increase in the sale of sour fluid cream which more than offset a 7-percent decline in the sale of other fluid cream.

TABLE 2

Estimated Sales Per Capita of Fluid Milk in California, 1950-1958

Estimated population July 1 (thousands)		*Total sales of fluid milk*		*Sales per capita (quarts)*
		Thousand gallons	*Thousand quarts*	
1956	13,600	458,346	1,833,384	134.8
1957	14,190	477,663	1,910,652	134.6
1958	14,752	483,873	1,935,492	131.2

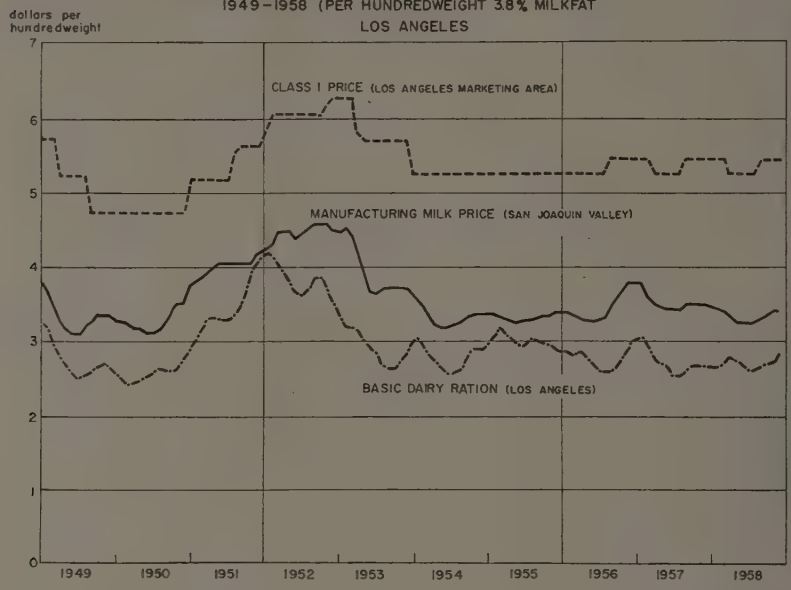
TABLE 3

Sales of Class 1 Fluid Market Milk Products, Other Than Fluid Milk in California, 1950-1958

(Thousand gallons)

	Fluid skim milk	*Flavored milk drink*	*Half-and-half*	*Fluid cream*
1956	19,886	8,209	16,515	3,367
1957	23,313	8,302	16,330	3,459
1958	25,015	7,879	15,644	3,494

COMPARISON OF MARKET AND MANUFACTURING MILK PRICES F.O.B. PLANT WITH COST OF BASIC DAIRY RATION 1949–1958 (PER HUNDREDWEIGHT 3.8% MILKFAT



During the past 15 years, the commercial production of all milk in California has increased approximately 43 percent. That portion which was received at plants as market milk doubled in volume, while that received as manufacturing milk declined about 30 percent. Between 1944 and 1958, the proportion of the total milk produced commercially in this State which was classified as market milk rose from 57 percent to nearly 80 percent.

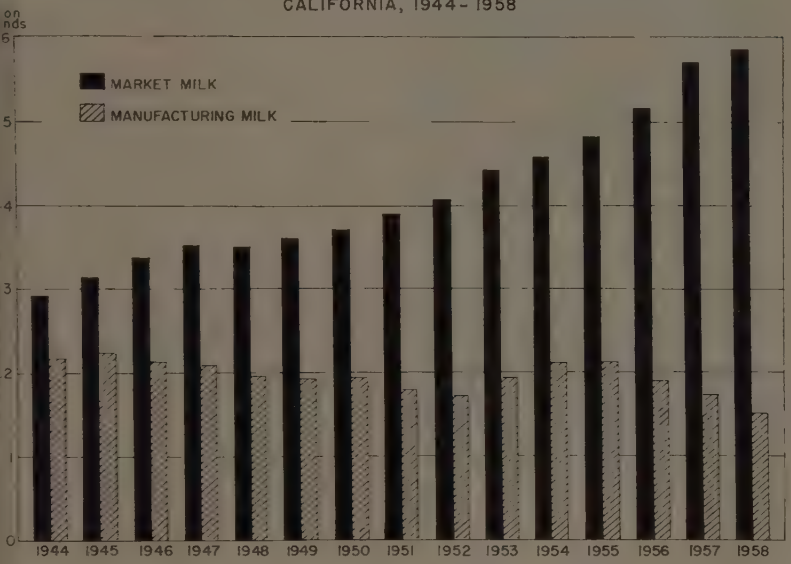
A comparison of market milk prices and basic dairy ration used in the production of market milk for the Los Angeles County Marketing Area with the average prices paid for manufacturing milk in the San Joaquin Valley for the period, 1949 through 1958, is shown on Graph A. This indicates the Class 1 price moved quite uniformly with the price of feeds during periods of increased prices, while during price declines of feeds, the Class 1 price showed more lag and moved more closely with manufacturing milk prices. The rather uniform fluctuation of the line representing the Class 1 price since 1955 illustrates the variations due to the seasonal pricing plan instituted in this market late in 1956.

During the year 1958, 67 cost of distribution studies were completed for fluid milk, 13 for fluid cream and 13 for fluid skim milk. In addition, 72 studies were adjusted to reflect labor increases, based on a report of expenses submitted each month by representative milk processing companies reflecting their actual expenses of processing and distributing fluid milk. One detailed cost study was made of a large ice cream manufacturing company and another study was made of the cost of manufacturing, cutting and wrapping of butter.

Two thousand four hundred ninety-one surveys were made of the cost of producing fluid milk by 508 fluid milk producers, and 365 surveys were made of the cost of producing manufacturing milk by 77 manufacturing milk producers. The purpose of these surveys was to determine the cost of producing and marketing fluid milk and manufacturing milk in various milk production areas throughout the State.

In general, costs of producing market milk showed little change from a year ago, reflecting only seasonal variations in production patterns and feed costs. Continued increases in milk production per cow, and

COMMERCIAL PRODUCTION OF MARKET MILK AND MANUFACTURING MILK
CALIFORNIA, 1944-1958



ewhat greater efficiency in the produc- operations during most of the year, led to offset any material change in er cost increases during 1958. Suitable olies of feed and forage, with favorable ther conditions, helped to increase the c production in California.

1 October, 1958, the bureau held nomi- on meetings throughout the State for purpose of receiving nominations for ointment to the California Dairy Industry isory Board. Ten appointments were le to fill vacancies.

s of January 1, 1959, 1,667 fluid milk ributors were licensed to do business as ributors in the State of California. Of e, 266 were bonded distributors pur- sing fluid milk from producers, 93 were affidavit distributors purchasing fluid c from producers and paying cash upon ipt of the milk, 184 were producer-dis- utors, and 1,031 were subdistributors chasing their supplies from distributors. o hundred thirty-two of the bonded dis- utors were bonded for the legal maxi- n of $5,000, 21 for $3,000, 7 for $2,000, 6 for $1,000.

1958, the bureau conducted 603 audits he payments to producers by distributors for fluid milk. The audits covered 30,871 producer months, and resulted in the recovery of $138,273.59 for 1,221 fluid milk producers.

The bureau filed 15 court actions and 5 license actions during the year. No court actions were filed against the bureau. Collections of civil penalties amounted to $6,250.

California Dairy Industry Advisory Board

The California Dairy Industry Advisory Board provides a year-round promotional program for California's milk producers, processors, and distributors. The board's activities are designed to increase the consumption of milk and dairy products, and to foster and promote a better understanding of the important role the industry occupies in the economy of the State and its vital contribution to the health and welfare of its citizens.

During 1958, the board instituted a complete food-page service for California's newspapers, radio and television stations. The various media have given spontaneous acceptance to this service by printing and airing the recipes and suggested uses for milk and dairy products. It was found that

material designed for California living has high acceptance by the newspaper, radio, and TV outlets.

The Special Milk Program and the School Lunch Program, both federal activities, occupied a considerable portion of the time of the board's staff. During the 1957-58 school year, these programs used 293 million half-pint equivalents of milk, which represented 7 percent of the total fluid milk sales while schools were in session.

Staff members, in co-operation with the State Department of Education, conducted cooking demonstrations for school cafeteria managers throughout the State, demonstrating modern methods in preparing and serving foods using milk and dairy products.

A new 16 mm. color and sound film entitled, "Home Economics—A Career With a Double Future," was produced in co-operation with the California Home Economics Association.

The board's advertising program is directed toward mass consumer appeal. During 1958, the board's slogan, "Make Mine Milk," again was used on outdoor billboards; there were four showings throughout the State, or a total of 2,860 individual boards at strategic locations.

Top priority is given to the educational program of the board. A total of 3,367,696 pieces of educational material was distributed all at the request of the recipients. Most of this material was supplied to the State's schools.

The Dairy Industry Advisory Board, together with other farm organizations, was a cosponsor of a statewide meeting for the "Food Comes First" Conference. This conference was attended by key professional leaders of the leading organizations interested in promoting better nutrition.

Exhibits were presented at the California State Fair and the Los Angeles County Fair. In addition, in co-operation with the Agricultural Extension Service and other food promotional organizations, an exhibit was presented at the California State Fair, the basic theme being "Food Comes First."

The board joined with dairy industry representatives in a very successful program centering on "June is Dairy Month."

Research projects designed to improve the quality and marketability of dairy products were carried on at the University of California, Davis; University of California, Los Angeles; University of California, Berkeley; Institute of Metabolic Research, Alameda County Hospital, Oakland; and California Institute of Technology, Pasadena.

ureau of Shipping Point Inspection

W. PETERSON, *Chief*
V. STAY, *Assistant Chief*

Shipping Point Inspection operations were nducted in 32 areas throughout the State ring 1958. Permanent district offices were aintained in 11 of these areas. The remain- g 21 districts are operated on a seasonal sis. In these areas the service is available nen needed, being dependent on the move- ent of products from these shipping areas. nese seasonal offices usually operate from or 8 weeks in some of the fruit shipping as, and about 8 months in the winter and ring vegetable shipping districts.

The United States Department of Agricul- re has similar co-operative agreements in other states. In volume of work per- rmed, California for several years has nked first among the states.

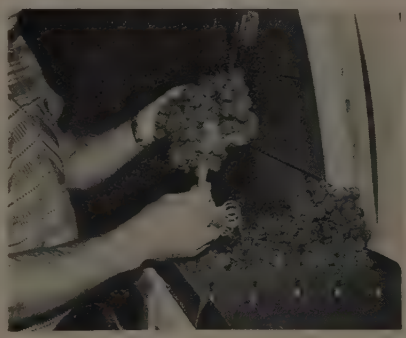
The Agricultural Marketing Service also erates a Receiving Market Inspection Serv- in about 80 cities throughout the United ates. These Receiving Market Offices, at e request of any financially interested op- ator, may make an appeal inspection on s or carlots when the receiver believes original certificate to be in error. Cali- rnia has a very small number of reversals the original certificates, which fact is a od indicator of the quality of the work rformed.

All inspections are made only upon the quest of persons or agencies having a fi- ncial interest in the product offered for spection. These requests are principally m shippers or growers but they also may from railroads, cold storage firms, or other ganizations desiring to establish the qual- , condition or grade of a product. When rtain industries have marketing controls sed on specific grades, this agency has en employed to make inspections on all pments of the particular industry. During 58, inspection fees were on the basis of 2 per carlot except that certain industry ntrols were on a contract basis.

The inspection work performed by the reau during the past year is divided into e following classes:

1. Optional inspection services performed on the basis of regular fees per unit of inspection: Inspections were made either on the basis of actual carlots being loaded, carlot equivalents, truck lots or other designated quantities for inspection. The greater part of the inspection work of the bureau is made up of this type of operation. In most of the districts many large shippers who operate packing houses place blanket orders with the Inspection Service for the inspection and certification of all their products. Some shippers may place orders for a certain definite number of carlots per day. Other shippers may call for inspection only when cars are being shipped to Canada and certification is required under Canadian regulations.

2. Work under federal marketing orders: Plums, pears, Tokay grapes and Elberta peaches, when shipped to interstate markets, are required to be inspected and certified under the regulations of the marketing order. These inspections are made on the basis of the standards adopted by the program committee of the specific marketing order.



Shipping point inspector checking grapes for size. Grape berries may be reported on the certificate as "small," "medium" or "large." Grapes packed in sawdust must meet minimum size requirements to comply with U. S. Standards for sawdust packed grapes.

Shipping point inspector marking date inspected and placing sticker in refrigerator car to indicate that contents of car have been federal-state inspected. Sticker states that any financially interested party may obtain a copy of certificate upon payment of fee to Bureau of Shipping Point Inspection, California Department of Agriculture at Sacramento.

3. Products under marketing orders handled by contract agreement: Under state marketing orders, Long White potatoes, cannery pears and grapefruit are handled under contract agreements. The charges for the work are made on the basis of the cost of operation. Federal marketing orders on grapefruit and nectarines are handled similarly.

4. Citrus inspection work under agreement with shipper: One citrus shipping organization has used the services of this bureau during the past three years in lieu of its own field inspection to maintain a quality control over the product being shipped. This work is not handled on the basis of its total shipments but arrangements are made to inspect and certify a certain number of carlots or lots each day. The shipping organization has established certain specifications on the basis of the U. S. standards. When its brands fail to meet such requirements the inspector must report this information immediately to the organization. This organization has found that the inspectors of this bureau and the use of this service has furnished it with an entirely satisfactory method of maintaining high-grade standards.

5. Inspections for Canadian Import: Certification is required on importations from the United States to Canada on 25 different fruits and vegetables. With most of the products any U. S. grade is acceptable for Canadian import. Higher restrictions than the minimum U. S. grades are placed on apples, pears and potatoes.

6. U. S. Export Apple and Pear Act: Under the Export Apple and Pear Act of June 10, 1933, a carrier may not lawfully receive apples or pears for transportation to a foreign destination unless certain specific requirements regarding grade, size and other factors are met to show compliance with these requirements.

7. Work that does not lend itself to an established fee: Certain types of work performed, on account of the quantity inspected or for other reasons, cannot be charged on the basis of regular fees. In these cases an hourly charge, or minimum daily guarantee, is paid by the operator.

The supervisory force of the bureau cooperated with the Fresh Products Standardization Section of the Agricultural Marketing Service in securing information and opinions from the California shippers and handlers on several different products in which the United States standards were in the process of revision during the year. The principal products on which the U. S. Standards were amended during 1958 of particular interest to the shippers of California were apples, nectarines, plums, prunes, and potatoes.

The amendment to the U. S. standards for apples of the most interest to California shippers was the increase in the amount of russeting permitted on yellow Newtown apples in the U. S. No. 1 grade. The U. S. standards for nectarines were revised principally for the purpose of providing U. S. standard pack requirements and for clarifying of definitions. The standards for plums and prunes were revised primarily to provide for certain diagonal packs in the four basket crates under the standard pack provisions.

The most important revision of the U. S. standards was that of potatoes. On account of the wide usage of these standards over the entire Country, it was necessary to select an effective date for the revision of the grades that would interfere the least with the commercial use of these standards. The date agreed upon was July 15, 1958. Meetings for discussion of the proposed stand-

ds were held in most of the shipping areas. nce some of the changes suggested were posed by certain areas of the industry, nly those amendments on which there was neral agreement were made effective.

Representatives of the Standardization ction of the Agricultural Marketing Serv-e, U. S. Department of Agriculture, con-ucted the field investigations preceding the vision of the U. S. standards and were sisted by the supervisory force of the bu-au. Industry members also were given an pportunity to state their views prior to iblication of the U. S. standards in the deral Register.

The general administration of the work as handled by the chief and two assistant iefs employed co-operatively as federal pervisor and assistant supervisors of the ureau of Shipping Point Inspection. Two ea supervisors and 12 district supervisors ere designated as agents or collaborators the U. S. Department of Agriculture on co-operative basis. All inspectors are li-nsed by the U. S. Department of Agri-ilture.

As usual, the lowest seasonal volume of ork occurred in March when a minimum 89 inspectors was employed. The peak the inspection work was reached early August, when 303 inspectors were em-oyed.

During 1958 all inspections, converted to carlot basis, totaled 151,176, as compared ith 175,246 for 1957, and 182,980 in 1956. eciduous fruits were lighter in volume of shipments than in previous years. These shortages generally were caused by unusually heavy rainfall between February and June, which in many areas was three to four times the normal amount expected during that season of the year. Since much of this rain came during the blooming period it resulted in a lighter volume of fruit being set and also increased damage by various diseases.

Approximately 50 different products were inspected and certified during the year. This included 13 fruits, 26 vegetables, 4 types of melons, 3 types of citrus fruits, and almonds. Many of the products were inspected by varieties. More than 30 varieties of plums were certified, 25 varieties of grapes and 8 varieties of pears.

Annual Total Shipping Point Inspections of 16 Principal Commodities

	1958	1957	1956	1955
Potatoes	40,851	47,268	47,339	54,112
Grapes	20,585	21,223	24,217	26,423
Celery	14,367	14,263	15,400	15,610
Lettuce	11,807	17,319	15,935	20,626
Tomatoes	5,629	7,152	7,756	8,065
Plums	5,548	7,328	8,522	7,529
Pears	5,411	6,935	6,659	5,084
Nectarines	3,802	*	*	*
Peaches	3,562	5,043	4,517	6,313
Lemons	3,282	3,236	2,085	1,986
Oranges	2,777	5,488	10,967	7,611
Onions	2,706	3,217	2,632	2,518
Cabbage	2,641	1,701	1,492	1,868
Carrots	2,251	2,689	3,155	4,334
Cantaloups	1,587	1,778	1,223	948
Strawberries	1,041	2,243	2,105	1,366

* Below the 1 to 16 leading commodities for that year.

Bureau of Weights and Measures

JAMES E. BRENTON, *Chief*
BURRIS G. WOOD, *Assistant Chief*

The Bureau of Weights and Measures enforces those parts of the Business and Professions Code pertaining to weights and measures, petroleum, antifreeze, brake fluid, standard bread loaf and special provisions relating to farm products as contained in Divisions 5 and 8 of the California Business and Professions Code.

Chapter 8, Title 4, California Administrative Code, contains rules and regulations governing tolerances and specifications for commercial weighing and measuring devices, standards established for a specific commodity, tare weight of containers used in delivery of edible agricultural commodities to processors and quality standards for brake fluid with the exception of products under the control of the Public Utilities Commission.

Every article or commodity sold or offered for sale by weight, measure or count, is subject to quantity inspection at the retail and wholesale level.

The quality of gasoline, motor oil, antifreeze and brake fluid must meet minimum standards before these products can be sold or offered for sale in California.

A heavy portion of weights and measures enforcement work falls on county sealers of weights and measures.

After hearings, the Administrative Code specifications and tolerances for commercial weighing and measuring devices were revised to conform with recommendations of the National Bureau of Standards. California's specifications and tolerances are now uniform with the majority of states and serve as a guide for nationwide manufacturers and distributors of weighing and measuring equipment.

TABLE 1

1958 Summary of Activities of Bureau Inspections

Vehicle scales	2,295
Other scales	2,206
Liq. petroleum gas meters (liquid)	1,395
Liq. petroleum gas meters (vapor)	2,011
Petroleum Inspections	56,248
Citations issued	1,370
Samples analyzed	5,154
Signs corrected	4,808
Vehicle tanks gauged	66
Farm milk tanks	13
Installations inspected	938
Special tests made	1
Office hearings	64
Prosecutions	85
Convictions	80
Pumps and meters (petrol)	145

CERTIFICATION OF COUNTY STANDARDS

Volumetric standards	286
Linear standards	30
Standards of mass	7,012
Dry measure standards	10
Meter provers (volumetric)	67

LICENSES AND PERMITS ISSUED

Public Weighmasters

Principal	2,205
Branch	1,488
Deputy	15,450

Gasoline, Distillate and Oil

Motor fuel pump license tage	92,967
Antifreeze permits	61
Brake fluid permits	80

TABLE 2

958 Annual Report Statistics Based on Reports of County Sealers of Weights and Measures

stablishments visited during 1958		218,383
ıckages or containers inspected		
Light	450,598	
Correct	3,604,555	
Heavy	1,584,299	
Total		5,639,452
ubricating oil bottles tested		
Inspected	79,693	
Passed	56,711	
Condemned and confiscated	1,182	

	Sealed without correction	*Sealed after correction*	*Out of order*	*Condemned and confiscated*
ales				
Counter—other than computing	27,640	8,542	3,013	130
Spring	36,585	11,222	1,935	387
Computing	55,588	26,187	7,791	314
Platform and dormant	24,408	14,482	5,637	167
Tank	213	160	43	
Hopper	1,470	891	331	5
Livestock	1,468	915	369	18
Vehicle	3,269	2,525	1,172	45
Person weighers	8,584	2,057	1,411	173
Meat beams and steelyards	2,532	1,056	318	20
Abattoir (monorail)	1,866	962	417	14
Prescription	1,941	2,480	129	13
Railroad track	39	85	8	1
eights	249,537	4,689	903	1,635
hicle tank compartments gauged	1,782	1,454	350	
hicle tank meters	2,634	2,565	617	12
lk plant meters	739	723	174	1
tail pumps and meters	100,161	17,706	9,526	93
ubricating oil meters (retail)	3,445	110	97	
rease meters	23,001	654	712	43
near measures	9,623	113	348	62
quid capacity measures	66,737	492	82	139
rm holding tanks	1,032	353	138	
Totals	624,294	100,423	35,521	3,272

osecutions	475
nvictions	458
quittals	2
tations	24
ses pending	83
herwise disposed of	71
Total fines paid	$26,765

DIVISION OF PLANT INDUSTRY

ALLEN B. LEMMON, *Chief*

The Division of Plant Industry consists of seven bureaus: Chemistry, Entomology, Field Crops, Nursery Service, Plant Pathology, Plant Quarantine, and Rodent and Weed Control and Seed Inspection.

During the year, Nursery Service, formerly a unit of the Bureau of Plant Quarantine, was re-established as a separate bureau. The added responsibility assigned to this unit as a result of 1957 legislation pertaining to standards of pest cleanliness in nurseries, and also pertaining to grades and standards of nursery stock, made it administratively desirable to have this unit report directly to the division chief.

Many of the functions of the seven bureaus in this division are carried on in co-operation with the county agricultural commissioners. The Agricultural Code, Section 102, provides "Each commissioner is an enforcing officer of all laws, rules, and regulations relative to the prevention of the introduction into or the spread within the State of pests, and as to such activities is under the supervision of the director."

The primary responsibility of bureaus in the Division of Plant Industry are reported in detail under bureau headings. Highlights of division and bureau work in 1958 follow:

After numerous meetings and three hearings in different parts of the State, regulations were adopted pertaining to the inspection of feed grain for weed seeds. This action is believed to be an outstanding forward step leading toward reduction of spread of weeds in the State.

From the standpoint of insect pests, substantial progress was made in the reduction of the number of properties infested with Khapra beetle, and even though intensive inspections were carried on co-operatively by federal, state, and county personnel, no new infestations were found during seven months of the year. It was not until almost the end of the year that several new infestations were found. These were immediately placed under a hold order and plans made for their treatment.

With the discovery of pink bollworm in the Gila Bend area of Arizona, about 100 miles from the cotton growing area in California, grave concern was felt that this serious pest of cotton might become introduced into California. The combined federal, state, and county co-operative detection program was augmented to make every effort to discover any California infestation that might occur. Added emphasis on thorough inspection was made by the plant quarantine inspectors at the border inspection stations. No infestations of this pest were found in the State.

It is with regret that we record the passing on March 16, 1958, of William L. Hunter, Chief, Bureau of Field Crops. Although he had been chief of this bureau only a few months, Mr. Hunter had, during the many years he was assistant chief, demonstrated outstanding leadership and administrative ability, not only in carrying out the duties and responsibilities of his office, but also in service to the various national organizations in his field.

ureau of Chemistry

BERT Z. ROLLINS, *Chief*
WITT BISHOP, *Assistant Chief*

alysis of Official Samples

ield inspectors working out of district ices in Sacramento, San Francisco, Los ngeles, and Visalia examine materials ered for sale in the State and draw official mples of commodities for examination and alysis to determine compliance with the mposition guaranteed on the label.

During 1958, official samples were ana- ed, representing 3,235 commercial ferti- ers, 586 agricultural minerals, 21 manures, auxiliary plant chemicals, and 19 soil endments, making a total of 3,879 ferti- ng materials. In addition, samples were awn representing 2,518 pesticides, 2,228 s of fruits, vegetables, and fodder which re analyzed for various pesticide residues, d 834 miscellaneous samples were analyzed, aking a grand total of 9,459 samples. e miscellaneous samples included analyses de for other bureaus of the department d samples submitted by county agricul- al commissioners for analyses required in eir official duties.

mmercial Fertilizers

During the Fiscal Year 1957-58, a record mber of 426 firms secured registration of mmercial fertilizers. The number of regis- ed firms has been increasing almost every ar and has doubled during the past 10 ars.

The tonnage of commercial fertilizers sold California has also increased regularly and record 1,130,344 tons were reported for e calendar year 1958. The continued in- ease of tonnage of commercial fertilizers ld in California is in contrast to the creases reported in the national tonnage ring the past several years.

During the year, audit was made of 268 ms registering commercial fertilizers. Of ese, 221 were found to have submitted rrect reports, 36 firms submitted reports that were short, and 11 submitted reports showing overages.

During the calendar year, a total of 3,231 official samples of commercial fertilizers were drawn and analyzed, as compared with 2,659 during the previous year. In addition, field inspectors carried equipment with which they made 128 hydrometer tests of tanks of ammonia solutions. Of the samples analyzed in Sacramento, 593, or 18 percent, were found to be deficient.

Several seriously deficient lots were quarantined out of sale. Quarantine was also invoked when a liquid fertilizer was found to contain arsenic. It had become contaminated when the manufacturer prepared it in equipment previously used to make an arsenical weed killer. Quarantine action was taken when dealers were found to be selling liquid fertilizer out of containers in violation of law.

When one manufacturer continued to market deficient fertilizer in spite of repeated warnings that the material was being found deficient, criminal complaint was filed against the firm and one of its officers. The defendants pleaded guilty and each was fined $50.

Some problems were encountered in the increasing deliveries of materials in bulk lots. To reduce costs of marketing materials in bags, some firms are delivering commercial fertilizers in large open bins. The law requires each lot of material to be properly labeled with the guaranteed analysis. Material delivered in this manner can be properly labeled but is available for official inspection and sampling only in the relatively short period between the time it leaves the manufacturer's plant and the time that it is actually applied to the soil, and this period may be only an hour or two.

California agriculture is using increasing amounts of anhydrous ammonia as liquid

under pressure for direct application and in the manufacture of ammonia solutions. Two accidents during the year involved the spectacular release of large quantities of ammonia gas. One of these occurred when a tank truck crashed into vehicles involved in a highway accident, and the other occurred when a line broke during transfer of the material from a storage tank into the tank truck.

Agricultural Minerals

During the Fiscal Year 1957-58, the number of firms securing registration to sell agricultural minerals continued to increase slightly and reached an all-time high of 185, as compared with 175 during the previous year.

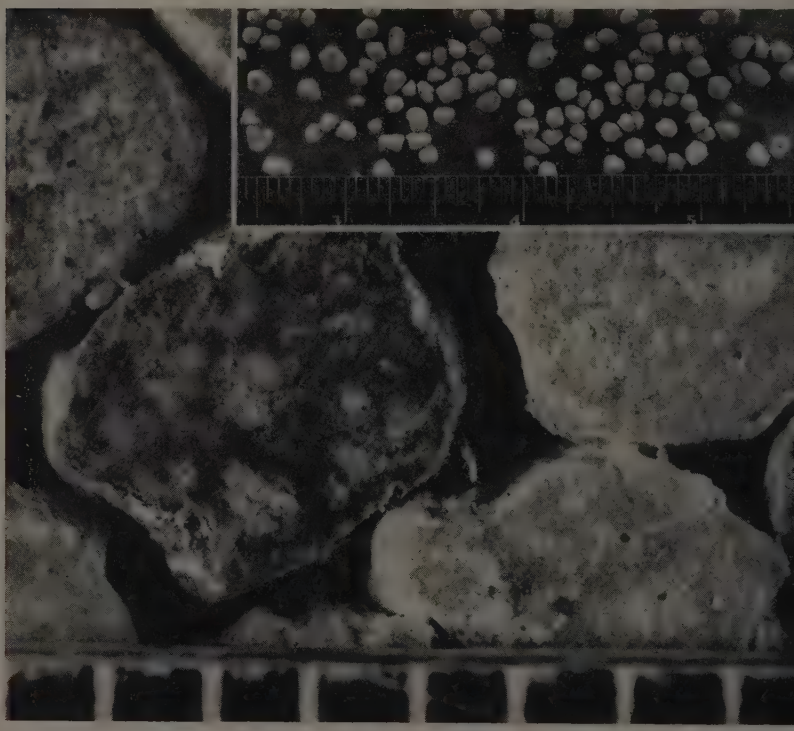
The tonnage of agricultural minerals sold in California also continued to increase and reached an all-time record total of 966, tons, of which 881,053 tons were agric tural gypsum.

When the books of 154 firms were exa ined to determine if the proper tonnage had been paid, it was found that 140 submitted correct reports, 12 were short payment, and two had overpaid.

A total of 586 official samples of agric tural minerals were drawn during the endar year as compared with 419 during previous year. Of these, 103, or 18 perce were found to be deficient.

As always, gypsum was of major imp tance, represented by 346 official samples, which 94 were found to be deficient.

Investigative hearings were held for firms during the year to provide them portunity to show cause why criminal co



Inset is actual size pellets of 14-14-14 granulated or pelleted fertilizer. The granules are commonly made treating dry solid fertilizer with nitrogen solutions then with sulphuric or phosphoric acids. Enlargement sh the components in each pellet. (Enlarged portion represents one-half inch width of the actual size pellets.

int should not be filed against them for eated deliveries of deficient materials.

complaint was filed against an officer one firm that repeatedly sold deficient rerial. He pleaded guilty and was fined and sentenced to serve 30 days in jail, ended pending compliance with law.

egistration was issued for use of carbon xide as an agricultural mineral. The mate- is intended to be injected into irrigation er at sufficient concentration to reduce ess alkalinity.

nure

ccording to federal estimates, 250,000 s of dried ground manure are sold in ifornia, mostly in package for the gar- trade.

uring the year a total of 21 official ples of manure were drawn for com- ative analysis. Five official samples re- ted during the year represented an regate of 1,538,000 cubic feet of the mate- either already packaged or in large stor- piles ready for packaging.

s in earlier examinations, the nitrogen tent of the materials ranged between 1.2 cent and 1.5 percent; available phos- ric acid from 1.2 percent to 1.3 percent; ash from 2.8 percent to 3.8 percent. asionally lots of manure have been sus- ed of carrying excessive amounts of and for that reason all official samples e analyzed for sodium chloride. They e found to contain from 1.2 percent to percent of salt.

nformation gathered during the sampling the materials indicated that probably h of the material labeled and sold as r manure actually comes from dairy ns.

iliary Plant Chemicals

mong the new auxiliary plant chemicals stered during the year were meta-tolyl nalamic acid to increase production of on, lima beans, and tomatoes; ascorbic for protection of plants from damage smog, and "AMO 1618" to retard elong- n of plants and to make them grow e compactly. Commercial and popular rest was shown in the agricultural use gibberellic acid which had been regis- d for agricultural use for the first time ing the previous year. A total of 18 ples of auxiliary plant chemicals were wn and analyzed officially during the .

Soil Amendments

Soil amendments includes hays, straws, peat, leaf mold, and sand. A total of 19 samples of such materials were analyzed in 1958. Large quantities of sphagnum peat moss, hypnum peat moss and sedge peat are marketed in the floricultural and garden trade in California and potting mixtures are becoming of increasing importance.

Pesticides

During the Fiscal Year 1957-58, a total of 820 firms secured general registration for the sale of pesticides, and 234 firms secured a limited type of registration permitting sales of pesticides not to exceed a total value of $500 per year. A total of 1,054 firms secured registration, an all-time record, exceeding the 1,017 firms registered during the previous year. The number of registered firms has been increasing by approximately 20 or 30 each year. These firms registered a record total of 13,193 products, 752 more than were registered during the previous year.

Official samples are drawn from pesticides found offered for sale in the State to check labeling and the composition against the guaranteed analysis. A total of 2,518 samples of pesticides were drawn during the year, a record number, greatly exceeding the 1,970 drawn during the previous year. Of the official samples analyzed, 311, or approximately 12 percent, were found deficient. Deficiencies were noted particularly in products containing malathion.

A number of deficiencies were found in materials guaranteed to contain sodium hypochlorite 16 percent, commonly sold for control of algae and for sanitizing swimming pools. Investigation showed that manufacturers are producing material that contains 16 percent when bottled at the plant. However, the material decomposes rapidly, particularly when warm or exposed to sunlight, and drops as low as 12 percent in a few days. Several meetings were held during the year with representatives of all the manufacturers, and firms have been redrafting labels to show lower percentages so the material will conform to guarantee when sold.

A number of deficient lots of pesticides were quarantined out of sale. These included deficient lots of malathion dusts, sodium hypochlorite solutions, DDT formulations, pentachlorophenol products, aldrin granules and aramite-sulfur dust mixtures. Quarantine

was also invoked when leaking cans of ant spray were found widely distributed in grocery stores.

Several samples of spray lime were found to be deficient because they had carbonated during storage. Spray lime is one of the pesticides that should be marketed fresh, or packaged in such a manner that it does not deteriorate in dealers' stocks. Spray lime is commonly used to precipitate metal salts as in preparation of Bordeaux mixture or micro-nutrient sprays, and deficient lime might produce an injurious spray mixture by failing to precipitate all the metallic salt.

Several products intended for control of algae and other pest organisms in small aquariums were found to be subject to the Economic Poisons Article of the Agricultural Code and registration and suitable labeling were secured.

At the first of the year the Bureau of Field Crops began administration of the new part of the Agricultural Code pertaining to livestock remedies and at that time a number of materials which had previously been registered as economic poisons were dropped from the jurisdiction of the Economic Poisons Article and placed under the jurisdiction of the Livestock Remedies Law. This change involved about 141 products manufactured by 31 firms, and included such materials as phenothiazine, piperazine, arecoline, and nicotine vermicides.

Hearings were held to investigate charges that salesmen had made false and misleading statements in connection with the sale of pesticides.

A number of new pesticide chemicals were registered for the first time during the year. These new materials included acrolein, Butyrac, eptam, fenuron, and Tryben for control of weeds; Dyrene and Phaltan for control of fungi; and Co-Ral, Dibrom, Dicapthon, Dylox, Kepone, Korlan, Phostoxin, Sevin, and silica gel for control of insects and mites. In addition, a number of new disinfectant chemicals were registered, particularly new organic chlorine compounds, and organic iodine complexes.

Agricultural Pest Control

During the calendar year, 1,387 persons or firms secured a pest control operator's license, and 221 of them were licensed to employ aircraft in their work. Certificates were issued to 484 pilots and 218 apprentice pilots after they had successfully passed required examinations. The number of operators and the number of pilots have been increasing slightly each year.

Much time was spent during the year investigating reports of careless operation, improper disposal of empty containers, and other infractions of the law or regulations which might require disciplinary measures.

One county agricultural commissioner canceled the county registration of an operator for carelessness and two other commissioners canceled county registration of three firms for failure to submit monthly reports of work done in the county, as required by county regulation. Investigative interviews were held with operators and pilots on complaints that drift of chemicals away from the field being treated had caused injuries to crops, livestock, or honeybees.

Equipment used to sample agricultural chemicals. 1—Bucket for collection of samples and accumulating triersful. 2, 3 and 4—Glass jars and dustproof paper bag used for sample containers. 5—Bung wrench for opening drums. 6—Stillson wrench. 7—Description-of-Sample forms. 8 and 9—Different size slotted triers for withdrawing dry samples from containers. 10—Tube enclosure to protect trier contents in windy conditions. 11 and 12—Liquid trier, rod and valve for liquid sampling. 13—Stapling plier to repair and seal bags 14—Trowel for sampling loose lumpy chemicals. 15—Polyethylene disc to form protective closure on jars filled with organic solvents.

After one operator repeatedly failed to register with the county agriculture commissioner as required by law, and after warning, a criminal complaint was filed against him. He demanded a jury trial, was found guilty, and was sentenced to 90 days in jail. He served 10 days. Service of the remaining 80 days was suspended pending his future compliance with law. Another operator was found guilty of a similar violation and was sentenced to a day in jail and was put on probation.

During the year nine pilots were killed in accidents, more than reported for any previous year. In addition, a tractor driver was hit and killed by an airplane engaged in crop dusting.

For a number of years the bureau has investigated individual cases where pilots were injured to ascertain if their vision and reflexes might have been impaired by subethal exposure to organic phosphates. No evidence has ever been found that this was the case.

An operator pleaded not guilty to a complaint charging him with doing pest control work without county registration. He was found guilty as charged and placed on probation for one year on condition that he pay a fine of $50 and either discontinue his spray service or secure proper county registration as required by law.

Disposal of emptied containers of pesticides continued to present a serious problem. In some cases emptied drums or cans were found to contain a cupful of a highly toxic chemical, sufficient to cause the death of anyone who handled the container and spilled the chemical on his skin. Investigations were made of air strips throughout the state. At some of these sites inspectors found dump piles of such partially empty cans, drums, bags, and cartons. Prompt action was taken to see that operators disposed of the empty containers carefully and promptly, and that arrangements were made for the locked or protected storage of pesticides awaiting application and of empty containers awaiting proper disposal by burying.

Injurious Materials

Two sets of regulations defining "injurious materials" and "injurious herbicides" and outlining requirements of their sale and use adopted in 1950 have been amended from time to time following required public hearings.

Injurious materials regulations were amended to include Thimet and Di-Syston to the list of injurious materials, to exempt parathion-treated cord sold for control of flies from the requirement of a permit, and to clarify the status of arsenicals not used as dusts.

The regulations concerning injurious herbicides were amended during the year to exempt from the requirement of a permit two newly developed products, one a wax block impregnated with 2,4-D for control of broad leaf weeds in turf and the other a diluted ready-to-use solution of an injurious herbicide in a one-quart container. The regulations were also amended to permit application of injurious herbicides in other than ester form closer to commercial vineyards and cotton fields in Kern, Kings, and Tulare Counties.

At present the term "injurious materials" includes three arsenicals when applied as dusts, 11 of the highly toxic organic phosphates, and five of the chlorophenoxy acetic and chlorophenoxy propionic acid compounds used as herbicides.

It is unlawful to sell or deliver any "injurious material" to any person who is required to have a permit unless the person signs a written statement that he has a valid permit to use the kind and quantity of material delivered. Several investigative interviews were held during the year to investigate reports that retailers or wholesalers had made deliveries of injurious materials without securing this required statement.

Agricultural Chemical Damage to Crops

Use of 2,4-D for treating tree stumps along an irrigation ditch caused severe damage to adjacent vineyards and cotton fields. Improper application of 2,4-D caused injury to citrus nursery stock, avocado trees, onions, and cotton, and drift of 2,4-D from treated fields caused damage to field and truck crops and commercial cut flowers grown in the vicinity. In one case, injury to a field of beans was found to be due to contamination of the spray tank with 2,4-D used in an earlier spraying.

Misuse of an arsenical weed killer near trees caused damage in several cases, as in former years. Use of monuron for control of weeds on a lawn injured a mulberry tree. Sulfur applied to grapes during abnormally hot weather caused some injury. Several peach orchards were reported injured by lime-sulfur solution sprays. Drift of a di-

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nitro defoliant from a cotton field to watermelons growing in an adjacent field spotted the melons and caused severe damage. Application of aminotriazole for control of nutgrass caused severe damage to sweet potatoes grown on the treated field. Several other cases were reported of damage to plants from misuse of soil fumigants when the fumigant was applied too close to growing plants or when soil was planted too soon after treatment.

Pesticide Deaths and Injuries

Five deaths attributed to pesticides during the year were investigated, as compared to 12 deaths investigated during the previous year. A four-year-old boy drank sodium arsenite weed killer which he found in an old rusty can abandoned underneath a house where he was playing. A one-and-a-half-year-old-boy died after he swallowed pellets of lindane intended for use in a lindane vaporizer. A man died from the effects of parathion after he had suffered severe exposure of the material in applying it by means of a hand duster. A man died from drinking sodium arsenite solution which was stored in an unlabeled wine bottle in a garden shed. A man engaged in dipping fence posts in pentachlorophenol permitted the chemical to soak his clothing. He did not wash it off and he died during the night from the effects of the chemical.

A number of non-fatal accidents occurred involving pesticides. In some cases the victims required extensive hospital treatment but recovered from the effects of the chemicals. Several spray and dust operators were injured during the year from exposure to parathion and to Phosdrin. When a man applied BHC to the perches in his poultryhouse, the chemical imparted an odor to the eggs and he was unable to market his eggs for several weeks after the poultryhouse had been thoroughly cleaned.

A housewife was reported to have been made ill by drift of parathion spray from a neighboring citrus orchard.

Five calves died following application of BHC spray. The labels of most cattle sprays include a warning not to apply the material to calves less than six months old.

In two separate cases, dogs died after eating a snail bait containing methaldehyde as the sole active ingredient.

Spray Residue Enforcement

Constant inspection is maintained over fresh fruits and vegetables and hay in the wholesale markets of Los Angeles and the San Francisco Bay area, and periodic examinations are made of produce sold in the San Diego area and in other parts of the State. In 1958 a total of 2,228 samples were analyzed.

Spray residue samples analyzed in Sacramento include many that result from special investigations rather than routine market sampling.

Overtolerance amounts of pesticide residue were found in 142 lots in the Los Angeles area, 11 lots in the San Francisco Bay area, none in Salinas and none in Sacramento. Out of the 2,228 samples analyzed for spray residue, 1,846 were original official samples representing produce in the channels of trade and of these 153, or 8 percent, were found to contain overtolerance amounts.

Produce found to contain more spray residue than the amount permitted by law, is immediately quarantined and held pending proper handling. In the meantime, prompt investigation is made to determine the cause for the overtolerance.

Records of violations are kept on file and one farmer who marketed lettuce containing excessive amounts of DDT was found to have violated the law previously. A criminal complaint was filed against him. He was found guilty and sentenced to 30 days in jail. Service of the jail term was suspended for two years pending his complete compliance with requirements of law.

Field Analysis

Complete control over pesticide residues cannot dependably be secured by "blind" sampling and analysis of produce in wholesale and retail markets alone. Thus field surveys are conducted shortly before harvest to find out what pesticides had been used, when they had been applied, and to sample the produce before marketing. Early findings of preharvest residue enabled growers to clean their produce and comply with the law before shipping it.

Blue residues of Bordeaux mixture appeared on celery shipped from California to the New York and Missouri markets and consumers there complained to local health authorities. Residues of copper fungicides appear to present no significant health haz-

ed hay is sampled with a T-handled sharpened tube rted into the bales. The tube is twisted and pushed full length into a bale. An ice cream type cardrd carton positioned within the handle traps the mple core to provide a cross section of the sampled bale.

l, and they have been exempted from the quirement of a tolerance by federal auorities. However, the source of the quesned produce was traced to the farmers. each case it was emphasized to growers t, even though such residues might be al, care should be taken to remove them avoid legal action against produce carry- visible residue.

Several lots of wheat and barley were covered to contain pink kernels, indiing that the lots had been contaminated seed grain previously treated with an ganic mercury fungicide. Contaminated s were held under quarantine until arngements were made for their proper ndling.

Increasing attention was given to examination of hay and other fodder. Residues of persistent chlorinated hydrocarbons, on feed present a hazard of possible contamination of meat and milk. Some investigations were made to develop devices for sampling hay for chemical analysis.

During the year the bureau published Special Publication No. 269, presenting results of examination of 3,239 official samples of fertilizing materials analyzed during the calendar year 1957, and Special Publication No. 272 with results of examination of 2,365 official samples of pesticides analyzed during the fiscal year 1957-58. Three series of announcements were also continued presenting information on pesticides, fertilizing materials, and agricultural pest control.

Bureau of Entomology–1958

ROBERT W. HARPER, *Chief*
STEWART LOCKWOOD, *Assistant Chief*

The Bureau of Entomology performs seven regulatory or service functions reported herewith:

INSECT PEST DETECTION AND SURVEY

Intensity of insect pest detection and survey work increased in 1958. Statewide programs were conducted for the following destructive insect species: Mexican fruit fly, Mediterranean fruit fly, melon fly, Oriental fruit fly, Western cherry fruit fly, walnut husk fly, European corn borer, grape leaf skeletonizer, wheat sawfly, sweetpotato weevil, Jananese beetle, Mexican bean beetle, Colorado potato beetle, citrus whitefly, pink bollworm, and cotton boll weevil.

For the first time, plans for these activities were submitted as a proposed detection and survey program to the county departments of agriculture, with a suggested allotment of county and state participation. The proposal was established on a fiscal year basis and was distributed to the counties early in the calendar year in order to aid them in budgeting and in scheduling for survey and detection manpower.

Outstanding events in 1958 included (1) the finding of citrus whitefly in the City of Sacramento and (2) the intensification of the search for pink bollworm as a result of the discovery of this major cotton pest in the Gila Bend area of Arizona, about 100 miles from the cotton-growing areas of southeastern California.

Mexican Fruit Fly and Multiple Fruit Fly Trapping

A co-operative trapping program by state and county personnel was conducted in 39 counties for detection of Mexican fruit fly, *Anastrepha ludens;* Mediterranean fruit fly, *Ceratitis capitata;* melon fly, *Dacus cucurbitae;* and Oriental fruit fly, *Dacus dorsalis.* Traps of two types were used: the glass McPhail trap for Mexican fruit fly, and the plastic, Steiner, multiple-purpose trap for the other three species.

Work of placement, inspection and servicing of the McPhail and Steiner traps was shared by the department and participating counties. Eleven seasonal state trappers maintained 990 McPhail and 1,584 Steiner traps on 1,561 properties in 39 counties. Sixty-one thousand five hundred sixty trap servicings required 10,435 manhours and 159,642 miles of travel. County personnel maintained 1,201 McPhail and 1,498 Steiner traps on 1,458 properties. Traps were placed in trees or shrubs known to be hosts of the fruit fly species being trapped during a five-month period from June through October. Certain Southern California counties maintained a minimum number of traps throughout the remainder of the year. The State supplied the participating counties with traps, lures and technical assistance. No specimens of these four important fruit flies were trapped.

Cherry Fruit Fly Trapping

Outside of the cherry fruit fly eradication project area along the Oregon border, trapping for Western cherry fruit fly, *Rhagoletis cingulata indifferens,* was conducted in 18 cherry-growing counties during April, May, June and July. All trap servicing was done by county personnel using ammonium carbonate Frick traps supplied by the bureau. Participating counties maintained 435 traps. Except for findings in Humboldt County, as discussed in connection with the eradication program, all other collections proved negative.

Walnut Husk Fly Trapping

Following the discovery of walnut husk fly, *Rhagoletis completa,* in Stanislaus, Merced and Santa Clara Counties in 1957, the 1958 program was restricted to distributional surveys for purposes of quarantine line adjustment. County personnel in 39 counties operated 3,218 traps provided by the State. During 1958 the walnut husk fly was trapped for the first time in the counties of San Joaquin, Mariposa, Tuolumne, Calaveras and Santa Cruz. A general infestation of the walnut husk fly was revealed in southeastern

Joaquin County. No further spread of pest was noted in Kern, Santa Clara, ...a and Sonoma Counties.

...anese Beetle Trapping

...raps for luring and catching adults of the ...anese beetle, *Popillia japonica*, were op... ed in 35 counties. Traps and anethole ...enol lure were supplied by the U. S. ...partment of Agriculture and were dis...uted by the bureau. Initial placement of ... traps in most areas was done jointly by ...nty- and state detection personnel. ...unty men serviced them from May ...ough August. Detection was concentrated ...ivil and military airports receiving trans...ntinental or foreign aircraft. Los Angeles ...unty maintained 123 traps in the vicinity ...the Los Angeles International Airport. ...er major concentrations were at San ...ncisco International Airport in San Ma...County, Travis Air Force Base in Solano ...unty and Hamilton Air Force Base in ...rin County.

...s the Japanese beetle is primarily a sod ... in the longer part of its life cycle, traps ... were placed on golf courses, in parks ... on other lawn areas near major trans...tation centers. No Japanese beetles were ...cted in California during 1958.

...k Bollworm and Cotton Boll Weevil

The search for *Pectinophora gossypiella* *Anthonomus grandis* involved five ...ses of detection effort:

(1) Inspection of cotton blossoms.
(2) Inspection of green bolls.
(3) Inspection of first-cleaner cotton gin ...sh.
(4) Inspection of lint cleaner machines.
(5) As a fifth phase of detection, trapping ...h argon ultra-violet light was added in ...8. Forty-five argon ultra-violet light ...s were maintained by U. S. Department ... Agriculture personnel in cotton areas of ...theastern California. Twenty traps were ...ced and serviced by state personnel in ... cotton counties of the San Joaquin ...ley and rotated weekly, covering the ...ire cotton-growing area. Out-of-door ... trapping was continued until cold ...ather made it impractical. Subsequently ...traps were run for several weeks inside ...tonseed oil mills and delinting plants in ...h the Imperial and San Joaquin Valleys. ...ink bollworm findings in California dur... 1958 were negative. Table 1 shows the ...k bollworm detection statistics in detail.

The bureau also aided Nevada State entomologists in an inspection of 2,625 acres of cotton on 15 properties in the Pahrump Valley of Nevada. Pink bollworm findings were negative.

TABLE 1

Pink Bollworm Detection—1958

	Location	
	San Joaquin Valley	*Southern California*
Blossom Inspection		
Blossoms inspected	143,633	429,746
Acres inspected	6,710	10,674
Properties	94	286
Man-Hours		
State	52	259
County	96	200
Federal	72	128
Green Boll Inspection		
No. Bolls inspected	117,150	120,067
Acres inspected	113,625	10,042
Properties	1,343	278
Man-Hours		
State	478	563
County	2,199	771
Federal	120	258
Gin Trash Inspection		
No. bushels gin trash inspected	16,740	17,593
No. gins sampled	106	22
Total No. gins	550	23
Man-Hours		
State	1,851	1,848
County	2,060	1,758
Federal	508	1,499
Lint Cleaner Inspection		
Inspections lint cleaner	4,866	4,326
No. gin visits	1,344	1,160
Man-Hours		
State	296	18
County	16	185
Federal	624	400
Argon Light Trapping		
No. traps operated [1]	20	45
No. trapping nights	1,211	3,245
No. trap inspections	740	2,563
Man-Hours		
State	767	8
County	211	56
Federal	16	2,214

[1] Largest number of traps in operation at any period. Number of traps not totaled since part were rotated between counties.

Field entomologist, E. J. Soukup, filling McPhail traps. The nozzle device employed was developed by Mr. Soukup to facilitate Mexican fruit fly detection efforts.

Black light trap used for pink bollworm detection. Man's cap in foreground illustrates relative size of equipment.

rape Leaf Skeletonizer

Survey for grape leaf skeletonizer, *Harisina brillians,* was conducted in six major rape-growing counties. Two hundred three roperty inspections on an estimated 5,228 cres required 335 state and 681 county man-ours. Greatest survey emphasis was placed pon the areas immediately outside the reviously known infested areas of north-astern San Diego County and southeastern iverside County, including the commercial rape acreages of Escondido and Hemet and he plantings of the Coachella Valley. Wild rapevines along 15 miles of the canyons in his area were also inspected. Survey results evealed only an extremely light infestation n Hell Hole Canyon, southeast of Rincon n northern San Diego County. Of the few pecimens found, several showed evidence of arasitization. Several other canyons that had arbored infestations in previous years howed no evidence of the insect or its dam-ge.

weetpotato Weevil

Sweetpotato fields and packing houses in Merced, Stanislaus, Orange, Fresno, San oaquin and San Bernardino Counties were nspected. Thirty-two state and 101 county nan-hours were used on 74 properties. Spe-al attention was given to inspection of the ull sweetpotatoes for evidence of larval or ult damage. No specimens or evidence of nfestation by *Cylas Formicarius elegantulus* ere found.

ropean Corn Borer

During 1958 inspections for European orn borer, *Pyrausta nubilalis* involved 32 ounties, 13,066 acres, 426 properties, 305 ate and 464 county man-hours. Findings ere negative.

trus Whitefly

Live citrus whitefly, *Dialeurodes citri,* was ound in the City of Sacramento in 1958. elimitation and peripheral surveys in a neckerboard pattern were made throughout ost of the city. In all, 235 blocks, 1,278 operties and 3,557 host plants were in-ected, exclusive of post-treatment inspec-on.

Outside the Sacramento area, statewide trus whitefly inspection included work in counties and involved 2,657 properties, 8,568 host plants, and required 717 state nd 676 county man-hours. Except for the scovery in Sacramento, findings were neg-ive.

Mexican Bean Beetle

Detection for Mexican bean beetle, *Epilachna varivestis,* was accomplished in 15 counties involving 200 properties and 12,380 acres and using 238 state and 323 county man-hours. Emphasis was placed on areas of greatest bean acreage and vulnerability, such as Ventura County, where 173 properties involving 5,559 acres were inspected using 128 state and 148 county man-hours. Findings throughout the State were negative.

Colorado Potato Beetle

Inspection for Colorado potato beetle, *Leptinotarsa decemlineata,* was made in Amador, Modoc and Lassen Counties. Ten properties representing 268 acres were checked using 11 state and 13 county man-hours. Findings were negative.

Wheat Sawfly

In areas outside the Cuyama Valley suppression area, surveys for *Pachynematus sporax* were made in 12 counties, covering 85 properties and 5,065 acres and using 165 state and 117 county man-hours. Special collection trips were made into Plumas, Sierra and Alpine Counties in an effort to collect adult males of grass infesting species of *Pachynematus* which are essential for specific identification. Larvae and an adult female were collected near Woodfords, Alpine County, but the search for males was unsuccessful.

INSECT ERADICATION AND SUPPRESSION PROGRAMS

Insect pests currently subject to eradicative action on a statewide basis include cherry fruit fly, spruce needle miner, Hall scale, citrus whitefly, wheat sawfly and Khapra beetle. Mexican fruit fly operations remain a preventative or protective measure.

Cherry Fruit Fly, *Rhagoletis cingulata: indifferens*

The 1958 eradication season began with the establishment of trap lines in Siskiyou County in mid-April, followed by extension of traps into Humboldt, Trinity, Shasta and eastern Modoc Counties. At the height of the season, 1,424 traps were in operation on 640 properties. Frick type traps, baited with ammonium carbonate, were used. Project personnel made 9,238 trap inspections during the season.

The first adult cherry fruit fly of the season was taken on July 2d at Weitchpec,

Elimination of seedling cherry trees. Wild, abandoned or unwanted cherry trees are destroyed by the bureau as part of the cherry fruit fly eradication program.

Humboldt County. Flies subsequently trapped at nine sites in Siskiyou County are presumed, in the absence of confirmed larval infestations, to be the strain of the fly which infests the better cherry, *prunus emarginata*. In August a single trap, south of Weitchpec, was found to contain 46 flies.

Fruit sampling began in late May. A total of 418 samples of cultivated cherry fruit from 375 locations was examined. All were negative except that reported from Weitchpec. Larval infestation was found in fruit of the bitter cherry at two locations, Hilt and McCloud in Siskiyou County.

Soil surfaces in the currently active eradication areas in the Montague district, central Siskiyou County, were treated with dieldrin soil sprays. Foliage sprays, beginning on May 21, were applied at 10-day intervals until the end of July. A total of seven methoxychlor cover sprays were applied in the Montague area. Weitchpec and Hoopa areas were not included in the treatment program due to their discovery late in the fruiting season.

Removal of seedling cherry trees and those cultivated specimens, either unwanted or on abandoned properties, are an important part of the program. This phase was reactivated within a one-mile radius of the Hoopa and Weitchpec collection sites. By mid-November, when work was halted because of weather conditions, 2,269 host trees had been removed from local properties. Stumps were treated with a herbicide to prevent regrowth.

Project traps were operated in local areas by the Siskiyou County Agricultural Commissioner's office. In Humboldt County, the Agricultural Commissioner's office and the United States Bureau of Indian Affairs rendered effective assistance with the initial contacts in the Weitchpec and Hoopa areas.

Spruce Needle Miner, *Taniva albolineana*:

The eradication effort that began with the discovery of an infestation in Modoc County in 1957 was continued in 1958.

Survey was conducted in the Surprise Valley, along Highway 395 from the Oregon line to the southern border of Modoc County, and in the Tulelake district. No indications of the insect were found on the 391 host trees examined on 154 properties.

Prespray examination of 117 trees on 44 properties in Alturas proved negative. In the course of this search, however, two new infestations were found. A total of 54 state and 52 county man-hours was given to joint survey activities.

DDT wettable powder plus spreader was applied to all host trees in the Alturas eradication area in late May. A total of 303 trees on 136 properties was treated, using 45 county and 26 state man-hours.

Hall Scale, *Nilotaspis halli*:

This is a federal-state eradication program. Activities during 1958 were devoted solely to inspection.

Eight areas of infestation were under surveillance. In all areas except Bidwell Park and Johnson in Chico, Butte County, work has been completed and the areas have been dropped from the survey agenda. Postfumigation inspections have been completed, with the exception of the city of Davis which has had but two examinations following completion of treatment. During the year 49,107 host trees were examined on 1,946 properties in peripheral areas, and 4,256 on 669 properties within treatment boundaries.

Many of the large orchard properties have been subdivided since the last complete inspection, resulting in more city blocks and properties with fewer hosts than originally estimated.

Adverse weather during the spring greatly curtailed survey activities of the project. During these periods, when conditions were unsuitable for field inspection, Hall scale personnel were used to assist in Khapra beetle survey. Four to five state seasonal agricultural inspectors have been employed on a matching basis with federal personnel.

ey have been rotated with federal inspec-
s to adjust for the nine month state and
month federal limitations on employ-
nt. This arrangement keeps inspectors
ich are experienced in this type of survey
rking full time.

rus Whitefly, *Dialeurodes citri*:

Citrus whitefly has been found in, and
dicated from, numerous California loca-
ns over the past 50 years. Eradicative
ion directed against the State's last-known
estation was completed in Madera County
1957.

Detection survey for this serious citrus
t is carried out routinely by state and
unty personnel each year. On January 8,
8, a heavy infestation near 23d and N
eets, Sacramento, was found. The area of
estation was identified as 22 residential
cks. Over 100 blocks were carefully
pected in this phase of the survey. A
eckerboard pattern was then followed,
t checking the entire city.

Winter discovery of the pest was of ad-
ntage in that treatment procedures could
readily completed prior to the expected
ergence of adult whiteflies in early April.
eatment was commenced on February
h, using a light-medium foliage-type oil
d water as a full coverage spray. By
arch 10th, the 22 infested blocks, plus a
ffer zone of one block surrounding the
ested district, a total of 51 blocks, had
en completed.

During the spray campaign, 2,180 hosts
cluding citrus, privet and gardenia on 557
operties were sprayed, using 16,730 gal-
ns of mix. Postspray examinations in the
fested districts were made on 235 hosts on
6 properties in 19 blocks. Living citrus
hitefly, a few mature, were found at two
cations.

These and surrounding blocks, totaling 10,
ere immediately resprayed using oil plus
DT, the residual DDT action proving
thal to adults. A total of 3,950 gallons of
ray was used in re-treating 560 hosts. Sub-
quent survey in the re-treated blocks dis-
osed no further live whiteflies.

heat Sawfly, *Pachynematus sporax*:

Eradicative measures directed against the
heat sawfly in the Cuyama Valley, and
volving parts of Santa Barbara, San Luis
bispo and Ventura Counties, continued for
e fifth consecutive year. Prior to the start of the eradication work, the wheat sawfly had manifested its economic importance as a serious pest with the total destruction of a 200 acre wheat planting and had also demonstrated its capability with respect to appreciable natural spread.

The 1958 season was the first during which no positive sawfly finds were made in either the prespray or postspray inspection. A total of 201 state and 157 county man-hours were expended in this effort. Forty-eight properties, representing 6,315 acres, were checked.

Eradication treatment again employed a mixture of DDT and diesel oil. All wheat, barley, volunteer and summer fallow fields were sprayed. With the exception of 200 gallons applied by Buffalo turbine sprayer, all of the insecticide was applied by aircraft.

Two overall applications were made again this season; one started April 8th, the other started April 23d. The first treatment totaled 18,650 acres and was immediately followed by a retreatment of 1,050 acres in Goode Canyon and 100 acres in the Venticopa area where positive finds were made last year. The second application covered 19,317 acres, plus retreatment of 673 and 100 acres in the same areas of last known infestation. In all, 39,890 acres were treated during 1958. Material assistance and cooperation was given by the three counties involved in the project area.

Khapra Beetle, *Trogoderma granarium*:

The major development with respect to Khapra beetle suppression during 1958 was the sudden drop in the number of infestations reported. No Khapra beetle specimens were found for over seven months, from May to December, despite 32,794 man-hours expended in the inspection of 11,733 properties and 4,505 collections submitted for identification.

As of January 1, 1958, 317 properties measuring 80,479,037 cubic feet, had been listed as infested. During the year 12 new Khapra beetle infestations were recorded, as compared with 37 in 1958, and three previously treated properties were relisted as still supporting live populations. Fifteen properties were added to the list of known infestation, making a grand total of 332 infested properties, totaling 82,500,781 cubic feet.

Only 17 eradicative fumigations were performed during the year, as compared with 53 conducted during 1957. The final fumigation of the year was completed in mid-November. The State remained free of known active infestations for nearly one month thereafter. The 17 property fumigations involved 3,010,940 cubic feet and required 25,573 pounds of methyl bromide and 57 pounds of HCN. Spray operations required 9,325 gallons of diesel oil and 135 gallons of 50 percent malathion. Thirteen of the 17 fumigated properties or 2,919,226 cubic feet were fumigated under contract. The other four properties, totaling 91,714 cubic feet, were fumigated by co-operating personnel using federal tarps. Only four properties, measuring approximately one million cubic feet, remained subject to treatment attention at the end of the year.

In June of 1958, a Khapra beetle conference was held and a suggested survey program for the Fiscal Year 1958-59, was adopted. It was estimated that such a program would require approximately 11,000 man-days of work. On the assumption that the U. S. Department of Agriculture would furnish one-half the man-power needs, the State and counties were assigned the other half on an equal basis.

State Khapra beetle personnel was reassigned to headquarters established in Sacramento, Fresno, Bakersfield, Riverside and El Centro. At least one entomologist, with assisting personnel, was stationed in each of these districts. This reorganization has allowed for more effective participation in the program. During the year 77,910 man-hours, 39,447 Federal, 18,919 State and 19,544 county, were devoted to survey activities which involved 32,879 properties and resulted in 10,168 insect collections.

During 1954, one infestation was found for each 50 property inspections; in 1955, one per 125; in 1956, one per 400; in 1957, one per 615, while in 1958, the figure rose to one infestation for each 2,191 property inspections made.

The Khapra beetle project is conducted on a co-operative basis. The U. S. Department of Agriculture furnished the bulk of the methyl bromide and approximately one-half of the survey force. Counties furnished approximately one-fourth of the survey personnel and participated in the direction of treatment operations. The State continued to pay the costs of contract fumigation, furnished most of the malathion and diesel oil, and increased its contribution to survey effort. The University of California at Riverside continued with research studies at a reduced level.

The cost of treatment operations was reduced considerably from previous years despite increases in contractual rates. Actual state expenditures for contract coverage amounted to $44,000, as opposed to $71,500 in 1957. The need for other items, such as methyl bromide, malathion and diesel oil, was reduced proportionately.

It is estimated that the counties expended approximately $40,000, mostly for inspection, while the University of California at Riverside spent approximately $5,000 on research. The U. S. Department of Agriculture, Plant Pest Control Division, budgeted approximately $235,000 for the year, while the total expenditures of the California Department of Agriculture were $130,000.

Expenditure totals show an overall approximate cost for the year of $410,000 compared to $500,000 for 1957.

Mexican Fruit Fly, *Anastrepha ludens*:

Basic program responsibilities remained substantially the same as in prior seasons. The U. S. Department of Agriculture maintained survey programs in Baja California, assisted with surveys in California and Arizona, and continued its treatment program in Baja California; providing spray materials for the State's treatment program; and operating research and quarantine facilities in Mexico.

The California Department of Agriculture maintained a near saturation trapping survey and an intensive program of treatment in border areas of San Diego County. Many California counties continued detection surveys in areas north of the project sector.

Bait spray treatments were resumed in March and continued to the first week of November. Current spray formula recommendations in use since June, called for eight pounds of 25 percent malathion wettable powder and two quarts of Staley's Insecticide Bait No. 7 in water to make 100 gallons of spray mix, applied at the equivalent rate of 50 gallons per acre. Project application rates were maintained at about 0.1 gallon per tree. Field tests have shown that optimum results were obtained with deposits comparable to those of a mist blower.

Eleven complete areawide treatments were applied at 21-day intervals, requiring 33,270 gallons of bait-spray mixture, 7,972 man-hours of application time, and 18,472 miles of vehicle travel. In all, 206,588 hosts and 4,061 nonhosts on 31,894 properties were treated, using small hand sprayers or high pressure sprayers as necessary.

Using a Buffalo turbine mist blower, roadside nonhost treatment included 30,334 trees and 91.6 miles of brush. Treatments in the border areas were divided into three types, according to method of application; hand-pack, high pressure rig, or mist blower. Routing plans enabled crews to stagger the timing of these treatments so as to provide fresh spray deposit on some trees in these areas each week throughout the season. In the canyon areas northeast of San Ysidro, seven air sprays of insecticide totaling 8,750 gallons were applied. Methoxychlor or tartar emetic, sugar and water was applied at the rate of five gallons of spray mix per acre. Each application totaled 250 acres of brush treated.

The State's trapping and fruit inspection survey was continued in the southwestern corner of San Diego County. In areas within one-mile radius of previously recorded positive finds, the survey was maintained on a near saturation basis. Outside these areas, the survey was less intensive. During 1958, a maximum of 1,374 McPhail traps were located on 443 properties. Trap inspections totaled 68,946 and required 21,591 property visits. Examination of 3,331 pounds of fruit from 433 properties, to determine possible larval infestation, required 7,088 man-hours. Specimens submitted for identification totaled 104 but none were identified as Mexican fruit fly. During the first half of the season 90 percent of the traps in use were baited with the fermenting sugar-yeast-water lure, and 10 percent with SIB No. 7 lure. After recommended changes were placed into effect, 90 percent were baited with the SIB No. 7 lure and 10 percent with the fermenting lure. The new lure uses a 1 percent mixture of SIB No. 7 in water.

A number of samples of native and ornamental fruits or fruiting plants were shipped by air to the research laboratory in Mexico City for the bioassay testing of local varieties as potential fruit fly host material. In all, eight shipments, totaling 18 plant varieties, were made. Research results to date have not indicated any new host fruit hazards.

The U. S. Department of Agriculture continued its year around survey activities in San Diego County, backing up the state program area as well as carrying on the winter period survey in the Imperial Valley. Federal inspectors working in California during 1958, recorded 80,933 inspections of 2,250 traps located on 341 properties and requiring 16,888 property visits. Inspections for larvae were made on 709 properties. Intensive surveys were carried on in Baja California. For the first time since the program began in 1954, no positive finds were made on either side of the border. Survey activities include 6,388 trap inspections in Tecate, 5,979 in Ensenada and 40,688 in the Tijuana Valley. Regular inspections were also made of market places, airports, post offices, etc., for contraband fruits.

Bait spray treatments in Tijuana and Tecate were continued from March through October. No treatments were applied in Ensenada. During the year an aggregate total of 231,305 hosts and associated nonhosts were treated requiring 43,603 property visits.

MIGRATORY INSECT CONTROL PROGRAMS

Beet Leafhopper, *Circulifer tenellus*:

Beet leafhopper populations had concentrated on winter annuals over restricted breeding grounds in southwest foothill regions of the San Joaquin Valley by the first of the year. Winter treatment applications were made throughout January. Surveys following the winter spraying revealed the most critical remaining populations persisting in northern breeding areas from western Fresno to San Joaquin Counties. However, during February and March excessive rainfall, about twice that of last season, resulted in heavy plant growth. Due to the heavy vegetative cover, spring reproduction of beet leafhoppers in these areas was greatly reduced and very little follow-up spraying was necessary.

The first nymphs of the season were found on February 18th, but cold wet weather retarded the hatch and delayed spring treatment operations until late April. Most of the spraying was done in the south end of the breeding grounds around Taft and Maricopa. Only spot spraying was necessary farther northward. By the end of May practically all beet leafhoppers had migrated from the foothills. Surveys of the beet fields in the cultivated areas showed only an occasional beet leafhopper in the San Joaquin, Sacramento, Salinas, and Santa Clara Valleys. The heaviest population was found in the beet fields in Cuyama Valley and around Wasco, Buttonwillow, Lost Hills, and Earlimart, Kern County, averaging from 1 to 4 per 10 net sweeps.

During the spring, virulence tests were made of beet leafhoppers collected from 6 different locations in the breeding grounds to determine their ratio of infection with "curly-top" virus. The results of the tests ranged from 1 percent to 13.3 percent.

Surveys for "curly-top" damage were made in tomato fields at intervals from May through August, in Tulare, Fresno, Madera, Merced, Stanislaus, San Joaquin, Yolo, Sacramento, Sutter, Colusa, Monterey and Santa Clara Counties. Plantings in all counties averaged less than one percent "curly-top" damage.

Initial fall migrations of beet leafhopper involve movement to Russian thistle. While late spring rains served to decrease Russian thistle stands in the northern end of the control area, due to the competition of heavy winter vegetation, thistle development in more arid southern districts was fostered by the increased rainfall. The first mapping, by helicopter, of Russian thistle infestations in June, to determine area subject to early fall spraying, recorded approximately 295,000 acres. The second mapping in September revealed little reduction in acreage due to plant drying. Population counts in mid-September averaged from 4 to 20 beet leafhoppers per net sweep for a series of 10 sweeps, with some individual counts of more than 100 per sweep.

During a three-week interval starting early in October, a total of 257,731 acres of thistle was treated by aircraft. Following the airplane spraying, 7,425 acres of Russian thistle, not lending itself to aerial application, were sprayed by ground rigs operated by state personnel. Beet leafhopper populations on the Russian thistle at this time ranged from 5 to 84 per sweep, with some individual counts of 200 per sweep.

By November scattered population remnants had moved to brushy perennials in foothill canyon terrain. Most of the treatment work directed against these leafhopper concentrations centered in Coast Range canyons from Fresno northward to San Joaquin County. Perennials adjacent to Coalinga had been sprayed by airplane during the thistle spray program. The residual effectiveness of the spray material was apparent as leafhoppers subsequently moving into these areas were killed. Table 2 shows the acreage sprayed in each county during the various seasonal campaigns for 1958. All spray applications involved DDT at the rate of one pound in one gallon of diesel oil per acre.

The Russian thistle elimination program was initiated in May and concluded in September. A thistle-free area was achieved in rangeland areas from the Altamont Pass in Alameda County on the north to Little Panoche Canyon in Fresno County on the south. Only local infestations were eliminated in the foothills adjacent to Coalinga and Taft. Table 3 shows the work accomplished in each county.

Spraying was done at the rate of 10 to 35 gallons per acre with spray material consisting of 1 quart of Sinox General, one-half pint of Triton X-100, and water to make 100 gallons.

In the Imperial Valley, unusual amounts of rainfall during the fall of 1957 produced widespread germination of winter annuals, predominantly popcorn flower and *Plantago*, over the desert floor. By January beet leafhopper populations of 2 to 40 beet leafhoppers per 100 sweeps had developed over approximately 25,000 acres of annuals on the west side of the desert from Mount Signal on the south to Westmorland on the north and posed a serious threat to spring host crops. By February nymphs were hatching and measured 10 to 30 per 10 sweeps of the standard insect net. During the month 3,900 acres were sprayed by ground rig and 21,700 acres sprayed by airplane.

Although virus tests of beet leafhoppers collected from the Mount Signal area showed 20.2 percent natural infectivity, collections from the Westmorland area were negative.

Population surveys of the beet fields and host plants in the cultivated areas in March, April, and May showed the counts to be very low. There was very little "curly-top" damage in the beet fields, practically none in the flax fields or early tomatoes. However, late tomatoes showed from 1 to 15 percent "curly-top" damage in May and from 13 to 21 percent "curly-top" damage in June. In June there was a heavy build-up of beet leafhoppers on weed hosts within cultivated areas. During the first part of June a weed control program was initiated by the farm adviser and the county agricultural commissioner. Industry representatives and farmers co-operated in this program to concentrate beet leafhopper populations and to reduce the amount of acreage subject to treatment. A beet-free period was maintained by the growers during August.

Spraying of weed hosts covered a nine-day period during late August. Weed hosts were sprayed on all roadsides, ditch banks, and idle lands from the international border to the Salton Sea, within the cultivated area.

There were 2,542 miles of road, 988 miles of ditch, and 547 acres of idle lands covered, using 4,400 gallons of spray material. In addition the Southern Pacific Railroad Company sprayed 95 miles of rights-of-way, using 708 gallons of spray material. This emergency spray program was jointly financed by state and agricultural commissioner agencies.

Surveys of beet fields during September, October, November, and December showed a gradual increase in beet leafhopper populations from 1.1 per 100 sweeps average to 8 per 100 sweeps. It appeared that beet leafhoppers which had migrated from unknown outside sources were building again to a point where severe damage to host crops might develop unless control measures were taken. Such effort, however, would involve farmer applied treatments only, inasmuch as no desert

TABLE 2

Beet Leafhopper Spray Programs—1958

County	*Winter*	*Spring*	*Early Fall R. Thistle*	*Late Fall Perennial*	*Annual Totals*
Alameda	40	--	--	--	40
San Joaquin	270	100	--	900	1,270
Stanislaus	--	75	--	175	250
Merced	--	--	--	225	225
San Benito	--	--	250	--	250
Fresno	5,430	320	49,231	3,535	58,516
Kings	1,500	--	59,729	--	61,229
Kern	5,200	7,400	152,246	--	164,846
San Luis Obispo	500	--	3,700	--	4,200
Grand Totals	12,940	7,895	265,156	4,835	290,826

TABLE 3

Russian Thistle Elimination Program—1958

County	Acres			Miles		Man-hours
	Sprayed	Hoed	100%	Road	Ditch	worked
lameda		747	67	76	--	687
n Joaquin		2,505	122	455	15	1,897
nta Clara		--	--	8	--	6
anislaus		1,175	43	349	12	588
erced		25,945	288	356	41	3,173
esno	100	23,529	332	705	3	4,003
ern	316	200	1	64	--	824
n Benito		--	--	25	--	16
Totals	416	54,101*	853	2,038	71	11,194

*This large acreage due to destroying only scattered plants over large areas.

nual growth developed during the fall of 1958 it had the previous year.

rasshoppers and Mormon Crickets

Grasshopper outbreak expectations for the 1958 ason, based on adult surveys made in co-operation ith county agricultural commissioners and the . S. Department of Agriculture during the fall 1957, indicated that over 3,000,000 acres of ngeland would support infestations of potential riousness.

This forecast represented one of the most exten- ve infestation outlooks of recent years. Accentuat- g the problem were the unusually favorable con- itions for egg deposition during the late fall of 957, particularly in the Sacramento Valley and ong the foothills of adjoining mountain areas. his development was particularly significant in eas where *Melanoplus devastator* was the predomi- ant species. Favorable spring weather during the atching period allowed for maximum nymphal rvival throughout the State. Due to this com- nation of circumstances, grasshopper populations all areas met, or exceeded, expectations.

In most areas prolonged spring rains resulted in unusually late, green supply of range growth. s a result, grasshopper populations remained on ative food areas and did not move into adjacent ultivated plantings. These populations, though iling to create the threat to 1958 crops generally ticipated, pose a considerable potential for trouble uring the coming season as egg deposition activi- s have occurred in close proximity to croplands.

During the control season of 1958, approximately 22,600 acres in 36 counties were treated on a oluntary basis. On a co-operative basis with the deral Government, 600 acres were treated to revent grasshopper damage to barley on the ower Klamath Game Refuge in Siskiyou County. verall treatments gave protection to 722,100 res and resulted in an estimated crop savings of 23,070,300.

During the 1958 control season an estimated 100 pounds of aldrin, 2,600 pounds of hepta- lor, 1,600 pounds of toxaphene and approxi- ately 600 pounds of miscellaneous insecticides ere used throughout the State for grasshopper ntrol. Most of these materials were applied in the rm of sprays or dry bran bait. In 1958 only 1,080 res were dusted with various insecticides. Gener- ly speaking, results were rated good to excellent.

A thorough adult grasshopper survey was made the fall of 1958, in co-operation with county d federal personnel. The survey indicated that er 4,500,000 acres of grassland in 49 counties will carry grasshopper infestations of potential significance. During the year 1959, outbreak conditions are expected to develop most severely in parts of the following counties: Amador, Butte, El Dorado, Fresno, Humboldt, Kings, Madera, Mariposa, Mendocino, Nevada, Riverside, Sacramento, San Benito, San Luis Obispo, Santa Barbara, Shasta, Solano, Sonoma and Yuba. As far as could be determined by localized surveys, no Mormon cricket infestations existed in the State during 1958.

Commodity Treatments

At the request of industry, a series of tests were performed to determine the tolerance of almond meats and unshelled nuts to repeated methyl bromide fumigation, and to measure the bromine residues that might result. Despite as many as five fumigations at standard or higher dosages, no injury or off-flavor developed, nor were inorganic bromine residues in excess of those allowed.

To assist in the development of treatment measures for avocados, so as to allow for movement from fruit fly infested areas, work was done with ethylene dibromide. Initial indications are that favorable host fruit tolerance and low bromide residues offer real promise for the future use of this materials.

Officially approved treatments using ethylene dibromide, were developed for a number of additional hosts of the pitmaking scale, *Asterolecanium arabidis*.

Quarantine treatments for white snail *Theba pisana*, based on methyl bromide or cyanide fumigation, were issued.

The total number of officially approved fumigation chambers in the State is now 58. One certificate was revoked and three were issued during the year.

Co-operative Economic Insect Report

This report serves as a clearinghouse for information depicting insect conditions within California. In preparing the report the bureau co-operates with the United States Department of Agriculture, Plant Pest Control Division.

A review of information on the abundance and occurrence of insects based on reports from federal, state, county, University Extension Service, and industry collaborators, the report is prepared and distributed weekly, monthly and annually.

Two other reports released annually are the list of 10 most important insect and mite species attacking agricultural crops in the State, and the

minimal dollar damage and crop loss caused by insect pests.

As a way of stimulating greater participation in surveying exotic insect conditions, a system of awards, open to anyone outside the state, was initiated. The schedule consisted of $25 payments for the identification of insects previously in the entomologist. The system was extended to $100 awards for detection purposes and to the grant of Citrus agriculture in Northern California in order to obtain an evaluation of its merits before making it statewide.

Systematic Entomology

The largest single category of insect identifications was the two hundred plus unclassified pinhole borers in connection with this work, and the one hundred plus collection of identified fruit flies and traps. We sent to Washington for determination. Aphids were sent to Dr. Leonard Gaut, Texas A&M. Mexican fruitworm, San Bernardino, San Diego, and Tulare counties. The pest of the survey was readily included in the main group. A portion of the determinations of the various insects involved were specimens.

Large numbers of mites and beetles came in these black traps, but field screening eliminated all but smaller mites. The above species. Not that mention should be the spider mite common, European elm bark beetle, Japanese beetle, Mexican fruit fly, Oriental fruit fly, Pacific coast wireworm, Pacific flatheaded borer, Pacific Coast wireworm, Pacific flatheaded borer, Pacific coast wireworm, Pacific flatheaded borer, Pacific coast wireworm, Pacific flatheaded borer, Pacific

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

TABLE 5

Record of Inspection

COUNTY	APIARIES			COLONIES		
	Registered	*Inspected*	*Diseased*	*Registered*	*Inspected*	*Diseased*
Alameda	125	16	6	2,745	235	17
Alpine						
Amador	11	8	2	355	248	2
Butte	347	219	24	15,310	5,801	44
Calaveras	30	30	2	389	381	2
Colusa	181	54	6	16,310	3,115	32
Contra Costa	11	22	9	105	661	19
Del Norte	5	---	---	43	---	---
El Dorado	5	---	---	306	---	---
Fresno	150	189	---	24,100	7,397	346
Glenn	189	78	10	8,129	1,953	17
Humboldt	15	4	---	73	31	---
Imperial	947	186	39	39,818	7,110	71
Kern	364	334	93	27,231	12,739	216
Kings	139	12	1	12,598	743	6
Lake	---	1	---	---	3	1
Lassen	33	7	---	602	23	---
Los Angeles	400	514	103	22,061	10,165	388
Madera	75	108	33	8,321	3,179	206
Marin	32	5	---	140	57	---
Mariposa	---	---	---	---	---	---
Mendocino	42	7	1	495	65	2
Merced	173	192	114	16,441	8,413	390
Modoc	2	2	1	51	72	3
Mono	---	---	---	---	---	---
Monterey	2	13	6	33	375	56
Napa	60	---	---	3,486	---	---
Nevada	10	10	1	132	183	21
Orange	280	254	35	11,373	5,911	167
Placer	7	33	15	307	1,354	95
Plumas	---	---	---	---	---	---
Riverside	536	118	31	22,760	5,784	100
Sacramento	75	13	3	2,344	282	10
San Benito	---	---	---	---	---	---
San Bernardino	440	522	87	12,281	18,878	201
San Diego	447	91	26	25,883	3,662	85
San Francisco	8	---	---	9	---	---
San Joaquin	63	73	---	3,093	7,100	92
San Luis Obispo	95	81	42	8,601	996	144
San Mateo	93	93	10	1,005	1,105	14
Santa Barbara	98	78	2	5,005	2,002	18
Santa Clara	49	113	18	380	905	35
Santa Cruz	105	15	4	2,813	763	8
Shasta	217	61	22	16,384	4,871	80
Sierra	---	---	---	---	---	---
Siskiyou	21	60	10	768	1,581	44
Solano	268	151	31	5,490	3,901	81
Sonoma	73	84	26	3,530	2,580	150
Stanislaus	85	78	27	6,468	2,812	61
Sutter	160	61	18	11,779	1,745	60
Tehama	81	90	23	9,115	4,975	119
Trinity	---	---	---	---	---	---
Tulare	64	30	11	6,877	668	29
Tuolumne	33	---	---	459	---	---
Ventura	327	248	43	24,422	11,713	143
Yolo	---	11	4	---	245	30
Yuba	64	47	16	3,384	2,204	47
Totals	7,037	4,416	955	383,804	148,986	3,652

Percent apiaries inspected which were found diseased 21.6
Percent colonies inspected which were found diseased 2.45
Percent estimated number of colonies in the State which were registered 68.6
Percent estimated number of colonies in the State which were inspected 26.6

ureau of Field Crops

RRY E. SPIRES, *Chief*
N P. ENTWISTLE, *Assistant Chief*

ld Crops Inspection

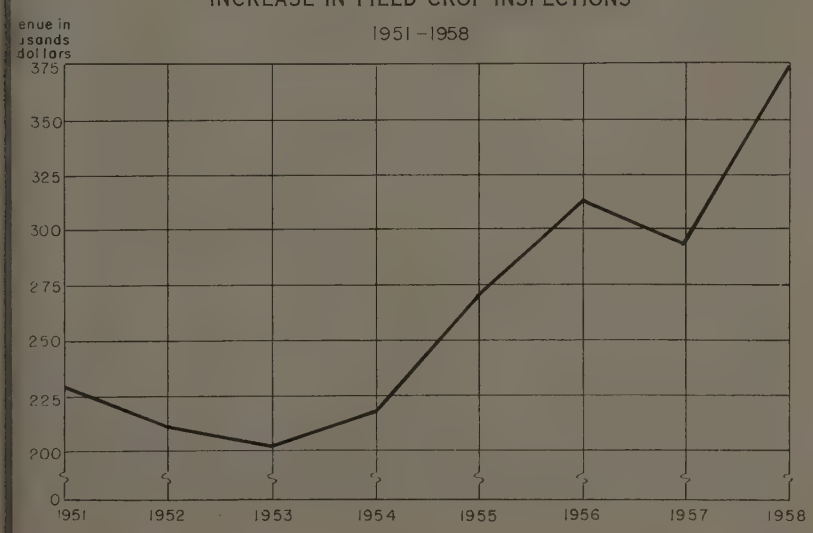
On May 1st, a permanent inspection office s established at Corcoran to provide serv- to one of the largest barley growing and rage areas in the State. Other inspection ces are located at Sacramento, Stockton, n Francisco (2), Oakland, Los Angeles, perial (seasonal), Petaluma, and Vallejo. The present cost of operation, and the t that the service which is optional must self-supporting, does not permit the estab- ment of offices at all points. To provide wice at some points, arrangements have n made with many county agricultural mmissioners to forward official samples to nearest office for certification.

TABLE 1

Inspection Certificates Issued for the Past Three Years

	1956	*1957*	*1958*
All grains	41,635	44,910	63,642
Combined, rice, beans, hops, and hay	20,069	16,318	18,759
Miscellaneous commodities and services	3,548	4,183	4,933
Totals	65,252	65,411	87,334

The inspection of grain and commodities during the year reached an unprecedented level as shown in Table 1. Many factors were responsible for this increase, including a greater yield in most crops, particularly corn and milo. There was considerable ac-



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tivity in the exportation of grain plus an accelerated program by the Commodity Credit Corporation for the storage of surplus milo in this State. The continued emphasis being placed on the bulk handling of agricultural products has increased the need for inspection to provide for a classification of quality before the crop can be comingled in storage.

TABLE 2

Field Crop Inspections—1958

Number of Certificates Issued

	Grain	*Miscellaneous*	*Rice, beans, hops, hay*	*Total*
Corcoran	2,973	3	.....	2,976
Imperial	7,093	.....	.....	7,093
Los Angeles	2,187	451	972	3,610
Petaluma	3,403	.....	.....	3,403
Sacramento	8,936	1,083	12,991	23,010
San Francisco	5,273	3,066	2,125	10,464
Stockton	30,508	111	2,671	33,290
Vallejo	3,269	219	.....	3,488
Totals	63,642	4,933	18,759	87,334

Commercial Feeding Stuffs

The volume of commercial feeds sold in California is the highest for any state; however, there has been no increase in the past three years. Approximately 4.6 million tons of feed were sold, based on the tonnage tax collected; 21.4 percent of the feed sold was used in commercial feed lots for fattening cattle.

As California's population grows, the livestock and poultry industry is forced into concentrating into larger units. This fact, together with the continued expansion of integrated operations, is causing a continual reduction in retail outlets as is seen in Table 3.

The very highly competitive market for feeds has put a great pressure on the feed manufacturers to adjust formulas to take advantage of any shift in prices of the various ingredients. This has resulted in a number of violations of the label declaration, both as to ingredient and chemical guarantees. The inspectors' vigorous followup of these violations in the field has kept the total of such violations down to what is considered a practical minimum.

The number of samples analyzed during the year was down from the previous year. This decrease was due partially to a shift in personnel whereby several new chemists had to be trained and also to the fact that more

Trucks of grain lined up for sampling and grading by the Bureau of Field Crops at Stockton.

lyses were required on the individual ples. Table 3 shows that, while the total nber of samples analyzed was less, the nber of vitamin assays, drugs, minerals, biological tests increased.

TABLE 3

Major Activities in Commercial Feeding Stuffs

	1956	1957	1958
LD ACTIVITY			
licenses issued as of December 31	2,915	2,822	2,698
Calls made by inspectors	3,579	4,548	4,408
Lots of feed removed from sale by inspectors	6	10	10
Number of bags removed from sale	1,365	3,395	3,778
Hearings held in regard to violations	2	.....	.....
BORATORY ACTIVITY			
Reports of inspection and analysis	8,665	9,043	8,547
Vitamin assays	1,154	1,192	1,230
Analyses for inorganic nutrients and miscellaneous properties	1,681	1,876	2,105
Analyses for additives used for growth promotion or disease control	1,091	1,200	1,381
Biological evaluation tests (chick) of broiler-fryer feeds	80	180	.....
Biological evaluation tests (chick) of protein meals	25	.....	.....
Biological evaluation tests (hen) of cottonseed meals for safety of egg production	.....	.....	249
Feeding trials (chick and rabbit) in connection with consumer complaint studies	3	4	13

ricultural (Bonded) Warehouses

This is another service function, whereby, request, the bureau licenses and bonds icultural warehouses. There is little de- for this service as there were only 10 nded warehouses with a capacity of 00 tons in California the past year. Those rehouses licensed are inspected for fa- ties, products stored, and negotiable re- pts issued.

ain Warehouse Inspection

The law requires the annual registration warehouses storing grain for the public. e bureau inspects these warehouses at st once a year to determine the extent, if y, of weevil infestation.

Inspections this year showed continued duction in the tonnage of grain con- mned because of excessive insect infesta- n. The grain condemned was located in two counties, wtih 87 percent of the total being in a single county.

Table 4 summarizes the results of the inspection of 241 registered warehouses in 1958, with comparable figures for the previous two years.

TABLE 4

Results of Public Grain Warehouse Inspection

	1956	1957	1958
Tons of grain examined	238,321	143,620	695,912
Tons of grain condemned	2,736	2,580	1,475

Livestock Remedies

The Livestock Remedy Law, enacted by the 1957 Legislature, became effective January 1, 1958. It requires registration of livestock remedies and the licensing of retailers of hazardous remedies. The registration includes a review of the labeling, its claims of value, guarantees of content, directions for use, and warnings against misuse. Those drugs are classified as hazardous remedies which may be administered to humans or which may be harmful to the health of livestock, or be harmful to humans who consume products of such animals when the drug is misused.

The first year of administration of the law required considerable educational work by the bureau with the livestock remedy trade. Therefore, the enforcement was tempered with leniency while the problems of registration and licensing were worked out and publicized.

Industry has offered resistance to complying with the legal requirement that all remedies must bear the statement "Livestock remedy—not for human use." This requirement is peculiar to the California law. Since these remedies move on a national basis, this requirement causes labeling problems unless a special label is used in California.

At the end of the year 553 livestock remedies were registered, and 556 hazardous livestock remedy retail licenses were issued; 135 livestock remedies were analyzed by the laboratory as follows: chlortetracycline, 16; penicillin, 43; sulfas, 76. All of the remedies analyzed were found to be as guaranteed.

Terminal Weighing

The one concern using this service in the past years discontinued having its flaxseed receipts check-weighed.

Bureau of Nursery Service

WRAY F. HILTABRAND, *Chief*
STANLEY M. MATHER, *Assistant Chief*

Nursery Service was separated from the Bureau of Plant Quarantine and re-established as a bureau in the Division of Plant Industry in October, 1958. The reorganization was made to provide more effective administration of increased responsibilities and duties, due to legislation enacted in 1957, and the expanding nursery stock registration and certification programs. In addition to the administrative and field staffs in Sacramento, district field offices are maintained in Fresno, San Francisco, Los Angeles, and Riverside. The bureau is self-supporting through fees for licenses and certification services rendered.

Plant Pest Inspection in Nurseries

During 1958, inspections for virus diseases were made in approximately 726 acres of deciduous fruit tree and grape nursery stock in the growing grounds of 75 nurseries. Symptoms of eight different virus diseases and four virus-like disorders were found. Grapevines found with fanleaf, yellow mosaic, and yellow vein were rogued from the nursery row. No stone fruit trees were required to be rogued because of virus diseases but some with genetic disorders and mixtures of varieties were destroyed by nurserymen.

The prolonged wet weather in the spring months increased disease problems in bare root nursery stock, interfered with its harvest and delayed farm and yard planting. Sales of this stock were affected in northern California as the ground was too wet for planting until late in the season. A severe cold snap in November caused considerable loss to walnut nursery stock. Some difficulty, apparently caused by excess moisture in heeling-in beds, was encountered with dead and dying roots in early dug peach stock. Woolly apple aphids and San Jose scale were troublesome in some areas. Damage to fruit tree nursery stock on peach root by the Western peach tree borer was reduced substantially by nurserymen following a DDT spray program. Heaviest losses of bare root stock were due to infections of crown gall, root knot and lesion nematodes. Losses of roses in Southern California due to crown gall and hairy root were considerably reduced from previous years. Marked reductions occured in fields in which growers followed sanitary and cultural practices developed by research workers of the University of California.

Sclerotium rolfsii, southern root rot, was found in 29 of the nurseries growing iris rhizomes. The disease, which has a wide host range, has been found occasionally on nursery crops. Stock found infected was placed under hold order by commissioners pending treatment or destruction.

Inspections of Easter lily fields in Humboldt and Del Norte Counties showed that fleck, a serious virus disease of Easter lily, had been held in check by severe roguing of infected plants and control of aphids required by commissioners.

Over 375 million field grown tomato plants, the highest number of record, were shipped from approximately 800 acres in Southern California nurseries. Less acreage was planted by direct seeding because of the wet spring which resulted in a good demand for the field grown transplants. Methyl bromide fumigation of some of the growing grounds in the Coachella Valley was required by provisions of the broomrape quarantine. Competition from weeds in fumigated fields was reduced. Broomrape, *Orobanche ludoviciana* var. *Cooperi*, was not found in any of the growing grounds. This species of broomrape occurs naturally in the Coachella Valley area where a large part of the tomato plant nursery stock is grown.

Approximately 500 acres of strawberry nursery stock were grown, slightly less than the previous year. Spring dwarf nematode, *Aphelenchoides fragariae*, was found for the first time in several strawberry nurseries in

ta and Tehama Counties where most of stock is produced. Prior to finding the atode, several million plants of the Las- variety had moved from areas later nd infested, primarily to southern coun- An immediate survey showed the pest e present in approximately 22 acres of ta and Lassen varieties in several nurs- . Movement of stock from areas found cted was restricted. Additional infesta- s were found in plants being grown for pagating stock for the following year. ble symptoms of the pest were not ap- nt and laboratory examinations of crown samples were necessary to detect in- tions. Other pests found in strawberries ng the season resulting in restriction of ement of plants were root knot and n nematodes which occurred in a ler percentage of the acreage than in ious years. Verticillium wilt was found the first time in strawberry nursery in northern Sacramento Valley. Rogu- a number of plants infected with aster ows virus was required in one nursery. evidence of red stele disease was found. ecial detection inspections of spruce were made in nurseries for the spruce scale, *Physokermes piceae*. Similar in- tions were started of dahlias for the to rot nematode, *Ditylenchus destructor*, of rhododendrons for the European disease, *Chrysomyxa ledi* var. *rhodo- froni* with negative results at the close he year.

Prompt action was taken to eradicate or restrict movement of nursery stock carrying serious pests to prevent establishment or spread to other areas. Seventy-eight infestations of 12 different pests requiring cleanup were found in nurseries in 17 counties as indicated:

Asterolecanium arabidis, Pittosporum pitmaking scale, Alameda 3, Butte 1, Contra Costa 1, Lake 5, Marin 4, Mendocino 1, Napa 3, Sacramento 1, San Mateo 2, Santa Clara 4, Sonoma 6, Stanislaus 1; *Aspidiotus spinosus,* Spinose scale, Los Angeles 1; *Dynaspidiotus britannicus,* Holly scale, San Mateo 1; *Genaparlatoria pseudaspidiotus,* an armored scale, Los Angeles 1; *Hemicycliophora* sp., nematode, Riverside 1; *Liriomyza dianthi,* carnation leaf miner, Placer 1; *Physokermes piceae,* Spruce bud scale, Alameda 1, San Bernardino 1; *Pseudococcus* n. sp., mealybug, Marin 1; *Sclerotium rolfsii,* southern root rot, Alameda 4, Contra Costa 2, Los Angeles 17, Riverside 1, San Bernardino 1, San Diego 3, Santa Clara 2, Sonoma 2, Ventura 1; *Trionymus diminutus,* Phormium mealybug, Alameda 1; *Unaspis euonymi,* Euonymus scale, San Mateo 1; Peach mosaic, San Bernardino 3.

Intensive control of olive scale, *Parlatoria oleae*, is required when found on nursery stock. Sixty-seven infestations of olive scale were reported found in 12 counties.

Noxious weed pests found in nurseries include:

Canada thistle in Alameda and Plumas Counties; Carolina horsenettle in Ventura County; Gaura in Santa Barbara County; hoary cress in Contra Costa and Napa Counties; Klamath weed in Sacramento County; Russian knapweed in Santa Barbara County; quackgrass in Alameda, Contra Costa, Humboldt, Marin, Plumas, San Francisco, San Mateo, Santa Barbara, Solano, and Sonoma Counties; and white horsenettle in San Diego, Santa Barbara and Ventura Counties.

ring soil area with plastic tarp to prevent escape of gas. Methyl bromide is injected into soil to kill Broomrape seed in land to be used for growing tomato nursery stock.

Intercounty Nursery Stock Certificates

The intercounty nursery stock certificate (pinto tag) program permits the movement of nursery stock within the State without inspection at destination. Nurseries meeting strict requirements of pest cleanliness use the certificates on shipments of nursery stock to 56 of the 58 counties within California. There are now 738 firms operating in 945 locations using the certificates. Each year since the start of the program in 1943 the number of locations qualified has shown a marked increase.

Plant Registration and Certification

Citrus trees found free from any suspicion of infection by the virus disease known as psorosis or scalybark may be registered as root-stock or top-stock sources for the propagation of nursery stock. Since the program started in 1937, a total of 2,212 trees have been registered. There are now only 188 trees remaining on the registry. Initial steps have been taken by the Citrus Experiment Station of the University of California in indexing propagating sources for an expanded program requested by the citrus industry. Inspections and indexing for other virus diseases, as well as psorosis, and the certification of nursery stock will be included in the program when the University has established clean foundation sources.

Strawberry certification regulations provide for two kinds of certificates for plants which are true to type and variety, relatively free from virus diseases, and free from harmful nematodes and the red stele disease. Visual inspection supplemented by indexing is required for certified plants. Registry certified plants may be grown only from sources which have been tested by indexing for virus disease symptoms. Marshall, Shasta and Lassen varieties, totaling 35,803,300 plants harvested from 185 acres, were certified during the 1957-58 season. Of this total, 11,700,000 were registry certified plants. This production is more than double that of the previous year and is the largest number of plants certified in any one season since the program was first started in 1949. Two beds of foundation stock for next season's planting were rejected for certification, due to the finding of root knot nematode. Two additional plant beds were withdrawn from the program when severely damaged by the foraging of wild animals.

In the cherry and grape programs, parent plants may be registered as root-stock and top-stock sources for the propagation of nursery stock that may be certified. The regulations for each, originally adopted in 1956, were amended to provide for certification of nursery stock in addition to registration of parent propagating sources. The Plant Materials Service of the University of California at Davis maintains foundation stock for distribution in limited quantities to growers who wish to participate.

Cherry trees registered total 52 for the University Plant Materials Service and 78 for nurserymen. Over 21,000 buds were taken from 68 of the registered trees in the fall and placed in mahaleb rootstocks, also from registered sources, for the production by nurserymen of additional budwood and certified trees. A limited number of certified cherry trees may be available for farm planting in the winter of 1959-60. Nurserymen have established 25 varieties of grapevines in 12 mother blocks and four increase blocks which have been registered. A limited number of certified grapevines grown from these registered sources will be harvested January, 1959.

A new program was adopted at the request of the avocado industry for the certification of avocado nursery stock grown in accordance with procedures to protect against infection with *Phytophthora cinnamomi*, the fungus causing avocado root rot. To be eligible for certification, avocado nursery stock is grown in treated soil in clean containers. Avocado seed used for growing the trees is required to be treated in hot water. Following treatments, containers, soil or other growing media and avocado nursery stock, including seed, must be kept from contact with the ground.

Licensing

The number of licenses to sell nursery stock continued its upward trend. The number of sales locations licensed in each of the past five years is as follows:

Fiscal year	*Sales location*
1953-54	6,472
1954-55	6,676
1955-56	6,720
1956-57	6,996
1957-58	7,181

Grades and Standards

The Nursery Stock Grades and Standards Law, enacted in 1957, was implemented with new regulations establishing grade-sizes for

uit and nut trees, grapevines and rose rsery stock. County Agricultural Commis-oners are enforcing officers under the pervision of the Director. Emphasis on forcement of the new provisions was di-cted at the wholesale level and is progress-g to retailers. Commissioners reported 762 ts of nursery stock totaling 57,395 plants d not comply with the law and regula-ons. Of these totals, 505 lots of 13,242 uit and nut trees were found with defec-e roots, 114 lots of 12,057 plants were ad or dying, and 143 lots of 32,096 plants re labeled improperly.

her Services of the Bureau

The Directory of Nurserymen and Others censed to Sell Nursery Stock in Cali-nia was published and distributed to the rsery trade and other interested persons. ne Nursery Service Circular of Informa-n, summarizing the more important Cali-nia agricultural laws and regulations ecting the nursery business, was dis-buted to all new licensees and to others on request.

Colored slides of insect pests were shown county agricultural inspectors as a part the training program to aid field men in tecting insects, plant diseases, and noxious ed pests. The motion picture "Nursery actices in California" was shown to oups of inspectors, students in public nools, and nurserymen.

Each year a census of fruit and nut trees d grapevines grown in the State is com-ed from information submitted by nurs-men. The total trees and vines grown market was slightly less than the pre-us season. Appreciable increases over the previous season were shown for freestone peaches, navel and Valencia oranges. Fewer nectarines, almonds, avocados, and lemons were grown.

The bureau participated in discussions with regulatory officials of western states leading to proposed plans for uniform standards for the certification of strawberry plants and for special certification of interstate shipments of bulbs. Uniformity of strawberry plant certification by the respective states is being sought on a national level by the National Plant Board and the International Crop Improvement Association. The special certification of bulbs at origin may eliminate the need for inspection of shipments on arrival in California from other western states.

Conferences were held with research workers and Agricultural Extension Service personnel of the University of California to discuss measures that may be taken to maintain and produce garlic seed free from the stem and bulb nematode, *Ditylenchus dipsaci*, and sweet potato seed free from serious virus and fungus pathogens. Both the garlic and sweet potato industries are interested in the establishment by the Department of certification programs to provide clean planting stock.

Assistance was given the Crop Reporting Service of the United States Department of Agriculture in maintaining a correct list of nurserymen in California for their production and value reports. The Agricultural Crop Reporting Board reported the wholesale value of eight types of nursery stock produced and sold in California in 1957 as $20,815,000.

Bureau of Plant Pathology

GILBERT L. STOUT, *Chief*
GEORGE E. ALTSTATT, *Assistant Chief*

DETECTION OF NEW DISEASES

Among the crops and plants inspected during the year for new diseases were crucifers, peaches, pears, potatoes, rice and tomatoes, and plants imported from foreign countries and held for inspection under federal postentry quarantine. Inspections, other than for peach mosaic and golden nematode and of items held under postentry quarantine, included 673 properties containing approximately 55,000 acres of the crops under investigation in 40 counties throughout the State. A total of 1,161 plant and soil samples for pathogen diagnosis was collected from these properties (623 for nematodes and 538 for other disease-causing organisms). The state personnel also assisted federal and county personnel in the inspection of 154 properties containing 192,909 peach trees for peach mosaic.

Crucifers

Inspections were made of crucifer plantings in central coastal areas, with emphasis on the club root disease caused by the fungus *Plasmodiophora brassicae* Wor. On June 18, 1958, Dr. Dennis Hall, Extension Plant Pathologist for the University of California at Davis, informed the Bureau of Plant Pathology that a field of cauliflower in Alameda County was infested with the club root organism, which had not been found previously in that county. The disease was not found during the year in other plantings, except on three properties where it had been found in 1957, in San Mateo County.

Peaches

Inspections for peach diseases were made in southern San Joaquin Valley in conjunction with the federal, state and county cooperative peach mosaic project. Emphasis was placed on looking for the peach mosaic disease, which is known to occur in California only in Los Angeles, Riverside, San Bernardino and San Diego Counties.

Pears

In statewide inspections of pear tree plantings, primary emphasis was placed on looking for the serious disorder known in the Pacific Northwest as pear decline, the cause of which is not yet known. Although declining pear trees were seen in some California orchards, their decline apparently is being caused by factors other than those causing the typical pear decline disorder of the Northwest. Graft union phloem (bark) samples from some of the declining trees found in California during the inspections were examined microscopically by Dr. Henry Schneider, Associate Plant Pathologist of the University of California at Riverside. Slight histological abnormalities were present in a few of the samples collected. However, none of the samples were diagnosed as positive for the pear decline which occurs in the Pacific Northwest.

Potatoes

In February, 1958, Dr. J. W. Oswald, Plant Pathologist of the University of California at Berkeley, informed the bureau of a new soil borne virus disease of the Kennebec variety of potatoes in the Salinas Valley of Monterey County. Symptoms consisted of rings and arcs on the surfaces of the potato tubers and internal brown necrotic flecks and arcs within the tubers. Inspections were made of Kennebec potato plants and tubers in California's commercial potato growing areas. The disease was found only in Monterey County, on nine properties (all with sandy soil). Subsequent information has indicated that the soil borne virus causing the disease of the Kennebec potatoes in the Salinas Valley is the same as, or a closely related strain of, the virus causing the potato disease in Europe known as potato stem mottle.

Rice

Inspections were made of rice plantings in the Sacramento and San Joaquin Valleys for

any new disease, but emphasis was placed on looking for the destructive hoja blanca[1] or white leaf virus disease that has been reported recently on rice in Florida and Mississippi and which has caused serious damage in certain Caribbean countries. No hoja blanca-infected rice plants were found. The only infectious diseases of rice found during the program were fungus-caused kernel discolorations.

Tomatoes

In the tomato disease detection program special emphasis was placed on a search for the parasitic plant known as Cooper's broomrape, *Orabanche ludoviciana* Nutt. var. *cooperi* (Gray) G. Beck, in an effort to determine whether it had become introduced into our major tomato growing areas on tomato transplants originating where the broomrape is native. No Cooper's broomrape was found.

Postentry Quarantine

There were 70 shipments of postentry quarantine items imported during the year. They consisted of 2,419 plants, 113 cuttings, 83 scions, and approximately 3,476 budsticks. This material, and 95 shipments held from previous years, received 158 inspections. Seventy-one shipments were released during 1958, leaving 94 shipments still under quarantine at the end of the year.

CHESTNUT BLIGHT

About 2,000 trees in San Joaquin County were inspected for chestnut blight, caused by the fungus *Endothia parasitica* (Murr.) And. and And. Three infected trees were found, all on one property where the disease had been found in previous years. They were destroyed under the supervision of the San Joaquin County agricultural commissioner.

TRISTEZA (QUICK DECLINE) OF CITRUS

The tristeza disease project is concerned with (1) the inspection of citrus orchards for the tristeza disease; (2) the finding and removal of Meyer lemon plants in the Meyer lemon-free districts; and (3) the finding and testing of Satsuma mandarin orange trees for tristeza in these districts and the removal of those found infected.

[1] See Calif. Dept. Agric. (quarterly) bulletin, Vol. XLVIII, No. 1, pp. 32-36, 1959.

Citrus Orchard Inspection

Orchard inspections are made by state and county personnel in and immediately around the areas quarantined for the tristeza disease to obtain current information on its overall spread so that quarantine lines can be kept up to date. In other areas where commercial citrus is grown the inspections are made to discover new and incipient infections so that early suppressive measures can be taken. Inspections during 1958 included approximately 63,000 acres of oranges, some inside and some outside of the quarantined areas.

There are two separate quarantined areas, both in Southern California (south of the Tehachapi Mountains). One is a large area consisting of part or all of Los Angeles, Orange, Riverside, San Bernardino, Santa Barbara and Ventura Counties. The other is a very small area in northwestern San Diego County at San Luis Rey, near Oceanside. The large area consists of three different parts, defined in the quarantine as regulated area (little or no tristeza), lightly infected area, and heavily infected area. The small area in San Diego County is all regulated area.

The rate of spread within the quarantined areas varied as to locality. In the regulated areas, tristeza was found only in Ventura County (on one previously infected property and on two that were newly infected). In the lightly and heavily infected areas the rate of spread was found to range from slow to rapid.

Outside of the quarantined areas, no new infection areas were found, but additional tristeza-infected trees were found on three previously infected properties where diseased trees had been removed. One was in Kern County (near Richgrove), and two were in Tulare County (near Lindsay and Woodlake). The Richgrove and Lindsay infections were traceable to the Woodlake property through budwood from it used in topworking the Richgrove and Lindsay trees. Transmission tests started in 1956 have been made of 462 trees on the Woodlake property and 22 have been found to be infected. Approximately 400 remain to be tested. Diseased trees found on all of these properties are being removed.

Elsewhere outside of the quarantined areas new infections were found only in Satsuma mandarin oranges, discussed later.

TABLE 1 [1]

Summary, by Counties, of Peach Mosaic Inspections in 1958

County	Inspected		Infected with mosaic		
	Properties	Trees	New properties	Total properties [2]	New cases (trees)
Fresno	34	37,880			
Kern	24	52,620			
Kings	46	47,178			
Los Angeles	4,203	36,602			
Orange	829	1,718	---	---	---
Riverside	3,262	110,548	26	105	200
San Bernardino	4,678	107,542	7	52	73
San Diego	119	23,520	2	9	19
Tulare	50	55,231	---	---	---
Total	13,245	472,839	35	166	292

[1] Figures compiled by U. S. Department of Agriculture.
[2] Includes properties infected in previous years and having new tree cases in 1958.

County departments of agriculture and county agricultural extension services assisted in reporting trees suspected of having tristeza. Members of the staff of the Citrus Experiment Station assisted in interpreting laboratory and transmission tests, in making some of these tests, and in examining diseased trees.

Laboratory tests in connection with diagnosis were made of bark and rootstock samples from 91 trees. Transmission tests on Mexican lime seedlings were made from 162 trees.

It is estimated that approximately 66 percent of the orange acreage of the State is now in the quarantined area.

Meyer Lemon Removal

Inspections for Meyer lemon plants were made in the Meyer lemon-free districts on a property-by-property basis.[2] As of December 31, 1958, there were 4,861 Meyer lemon plants found on 3,485 properties in the districts, and all but 41 on 39 properties had been removed. Inspections and removals have been a co-operative state and county project.

Satsuma Mandarin Orange Testing

Many Satsuma mandarin orange trees are carriers of the tristeza disease virus. In order to preserve the benefits derived from the removal of Meyer lemon plants in the Meyer lemon-free districts it is necessary to find and remove all infected Satsuma orange trees in the Meyer lemon-free districts. Since the districts were established (effective January 16, 1957), approximately 18,450 Satsuma orange trees have been found in them. All such trees not known to have been propagated from clean budwood and rootstock sources are under suspicion of being infected and must be tested. Tests have been completed on 770 trees. The results indicate 242 of the 770 are infected. The infected trees are to be removed.

[2] See map of Meyer lemon-free districts on page 179 of the 1957 Annual Report (Calif. Dept. Agric. (Quarterly) Bull. Vol. XLVII, No. 2, 1958).

PEACH MOSAIC

Inspections for peach mosaic disease included 472,839 peach trees, of which 244,682 were inside the area under quarantine. Of the total, 94,622 trees were inspected a second time. In nursery sales yards and growing grounds, an additional 105,713 other stone fruit host trees were inspected. There were 292 mosaic trees found, all within the quarantined area. The work started on April 21st and was completed on July 25th. A summary of the inspections and results is shown in Table 1.

Completion of the inspection, begun in 1957, of a barrier zone along the western boundary of the quarantined area showed no spread of the disease beyond the quarantined line.

In co-operation with personnel of the Entomology Research Division, U. S. Department of Agriculture, buds from trees of *Prunus* spp. were collected in some of the orchards inspected in Kern, Tulare, Kings, and Fresno Counties and were examined for the presence of the peach mosaic virus vector, an eriophyid mite (*Eriophyes insidiosis* K. & W.). This mite was not found in approximately 50 bud collections made.

In addition to the inspections for peach mosaic shown in Table 1, inspections for other peach virus diseases, including yellow leaf roll, western X-disease, and yellow bud

TABLE 2

Summary by Counties of Inspections for Peach Yellow Leaf Roll and Western X-disease in 1958

County	Inspected Properties	Inspected Trees	Infected: Yellow leaf roll Properties New	Yellow leaf roll Properties Total [1]	Yellow leaf roll Trees New cases	Yellow leaf roll Trees Total cases	Western X-disease Properties New	Western X-disease Properties Total [1]	Western X-disease Trees New cases	Western X-disease Trees Total cases
utte	348	379,369	2	4	41	41	2	14	20	20
erced	3	37,072	---	---	---	---	---	---	---	---
acer	4	35,007	---	---	---	---	---	1	1	1
anislaus	173	457,856	---	---	---	---	8	9	13	13
utter	633	1,348,425	5	13	27	27	7	35	48	48
ehama	12	21,193	---	---	---	---	---	3	3	3
uba	176	677,508	---	---	---	---	1	14	20	20
Totals	1,349	2,956,430	7	17	68	68	18	76	105	105

[1] Includes properties infected in previous years and having new tree cases in 1958.

The yellow leaf roll disease never has been found to occur outside of Butte, Placer, Sutter, and Yuba Counties. The related and more widely distributed western X-disease has been detected in 14 counties, including the four where yellow leaf roll also occurs. This year, for the first time since the beginning of the inspection program in 1950, no yellow leaf roll was found in Yuba County, where during the first three years of the project (1950-1952), the majority of all the yellow leaf roll trees found in the State occurred.

At least one inspection was given to all commercial peach plantings in Butte and Yuba Counties, and in the Bear River district of Placer County, as well as in all of Sutter County's commercial plantings except those located in sections (one square mile each) within which neither yellow leaf roll nor western X-disease had been found since 1954.

The Merced County inspections were limited to the affected portions of three large plantings where western X-disease had occurred in 1957 or in 1956. In Stanislaus County the inspections were made of properties with a previous history of western X-disease, and of commercial plantings not inspected since 1955. The Tehama County inspections were confined to orchards where western X-disease was found in 1957.

One or more reinspections were made on all properties where yellow leaf roll was found in 1958 or previously.

TABLE 3

Summary by Counties of Peach Yellow Bud Mosaic Inspections for 1958

County	Inspected Properties	Inspected Trees	Infected with Yellow Bud Mosaic: New Properties	Total Properties [1]	New cases (trees)
utte	46	88,994	---	1	8
apa	6	2,240	---	---	---
acer	42	46,288	---	---	---
n Bernardino	98	16,437	---	3	3
olano	7	6,777	2	3	12
utter	70	133,767	---	1	23
ehama	23	59,516 [2]	--- [3]	--- [3]	--- [3]
olo	1	4,575 [2]	---	---	
uba	11	26,314			
Totals	304	384,908 [2]	2	8	46

[1] Includes some properties infected in previous years and having new tree cases in 1957.
[2] Includes trees in close-planted nursery rows.
[3] Suspect trees only were found.

The Butte County inspections were confined to the Gridley district, where the disease was found in 1957. The Napa County inspections were limited to a previously infected property and its environs (in the quarantined area) and to one orchard not previously infected (outside of the quarantined area). The Placer County inspections were confined largely to nursery growing grounds and their immediate environs.

In Solano County the inspections were limited to a previously infected experimental planting and its immediate environs. Eight infected trees were found in the experimental planting, and four in two commercial orchards nearby.

Inspections in San Bernardino County were made in conjunction with the regular annual inspections for peach mosaic and included all of the area in that county quarantined for peach yellow bud mosaic. In Sutter County the work program included inspection of a previously infected property and its immediate environs. The infected property still is the only known location of yellow bud mosaic in the county. Inspections continued in the Live Oak district in orchards not previously examined for the disease. The Tehama County inspections included practically all of the Antelope district, where the disease was detected in 1957, and a small acreage in the Billy and Bend districts. While no new tree cases could be confirmed, a number of suspicious trees were observed in the two previously infected properties and on one adjoining property. In the Antelope district, presence of peach leaf curl caused by the fungus *Taphrina deformans* (Berk.) Tul. made inspections for yellow bud mosaic unusually difficult and in some cases impractical.

In Yolo County the inspection work was limited to a previously infected experimental planting.

In Yuba County, for the first time, the inspections were made in District 10 instead of the Wheatland district where yellow bud mosaic had been detected in two orchards in 1954, but not in subsequent inspections.

mosaic, were made in 10 central and northern California counties. They included 3,024,826 peach trees on 1,416 properties. No peach mosaic was found.

PEACH YELLOW LEAF ROLL AND WESTERN X-DISEASE OF PEACH

Inspections were started on May 27th and terminated on September 30th. The scope and results of the inspections are shown in Table 2.

PEACH YELLOW BUD MOSAIC

Inspections for the peach yellow bud mosaic virus disease started on April 14th and were terminated on June 2d. The scope and results of the inspections are shown in Table 3.

VIRUS-FREE NURSERY STOCK *

Work was conducted on cherries, almonds, apricots, peaches, nectarines, plums, prunes, grapes, and pears.

Instruction and training in the detection of virus and virus-like diseases were given in the field to state and county inspectors and nurserymen. A close co-operation has continued with the United States Department of Agriculture, the University of California Agricultural Experiment Station and Extension Service, county agricultural commissioners, the California Department of Agriculture's Bureau of Nursery Service, nurserymen, growers, and horticulturists, including fruit tree and grapevine breeders.

Three isolated field plots are maintained, two for conducting indexing tests and one for maintaining sources of stock substantially free of viruses and needed for carrying on the work. Indexing work included: (1) transmission tests on unknown disorders encountered in the work, (2) inoculation of various host plants to determine the host range of certain viruses, and (3) tests of various trees and vines on "guinea pig" plants for the purpose of determining freedom from latent virus diseases.

Cherries

The department's regulations for the registration of cherry trees, adopted in 1956, were amended, effective July 20, 1958, to include provision for certification of cherry nursery stock when propagated and grown in accordance with a required procedure, including indexing and visual inspections to assure freedom from serious virus diseases.

Two mother blocks of registered cherry budwood source trees established in 1957 were continued through 1958. Ten nurseries, which produce the bulk of the California-grown cherry nursery stock, have established cherry budwood increase blocks to increase their supply of registered budwood for 1959. However, because of the limited number of registered budwood trees, the bulk of the cherry budwood used by nurserymen continues to come from unregistered small plantings or commercial orchards. In most instances, these budwood source trees have been produced from sources which have had preliminary indexing; thus, the progeny represents improved stock.

Inspections of cherry propagating sources included 2,854 tree examinations on 14 properties, and 157 trees were rejected as unfit. Indexing work included the starting of five host index tests of 15 candidate seed source cherry trees for the cherry registration and certification program, and the testing of 260 trees on Shiro-fugen flowering cherry which resulted in the finding of 32 trees with latent ring spot virus.

Almonds

The most common virus encountered in almonds is the peach ring spot virus. Ring spot index tests of 123 trees on Shiro-fugen flowering cherry revealed 40 infected with the latent ring spot virus. The results of ring spot tests made of 46 parent budwood trees involving eight varieties were correlated with the results of visual inspections of 13,941 June-budded progeny trees in the nursery. Although some parent source trees of all eight varieties were found to be infected with latent ring spot virus, only the progeny of the Mission (Texas) variety exhibited symptoms while growing in the nursery. Approximately 12,000 almond seedlings were examined in one nursery in an attempt to correlate the occurrence of corky spot, a disease of unknown cause, with certain rootstocks.

Almond budwood source inspections included 6,975 tree examinations on 15 properties, and 10 trees were found unfit.

* For this project state funds were matched with federal funds received from the Agricultural Marketing Service, U. S. D. A., under provisions of the Agricultural Marketing Act of 1946.

ricots

Tests of 39 selected budwood source trees ring spot virus on Shiro-fugen flowering erry revealed that 19 were infected with ent ring spot virus. Inspections of 536 ne-budded apricot progeny trees propaed from six parent source trees, one of ich was infected with latent ring spot us, did not reveal any apparent symptoms virus. Visual inspections included the aminations of 1,822 apricot budwood rce trees on 11 properties. Two of these es were rejected as unfit for propagating . The only visible disease encountered s apricot ring pox.

aches and Nectarines

Emphasis was placed on the search for us-free sources of peach and nectarine rieties. Experience has shown that visual pection is not sufficient for detecting all uses that may infect peaches and nec-ines; therefore an attempt was made to rrelate visual inspections with tests for g spot on Shiro-fugen flowering cherry. ng spot tests of 2,221 peach and nectarine es revealed 681 to be carrying latent g spot virus. Critical visual inspections for ach necrotic leaf spot were made of 196,-7 June-budded nursery trees, and the inection and indexing of 416 parent source es representing 46 varieties were made nere co-operating nurserymen kept deled records of progeny and parent source es. This work demonstrated to nurserymen the effects of ring spot virus and also ovided ring spot-free and peach necrotic f spot-free budwood source trees for a fure peach registration program. Plans are w underway to provide for registration and rtification of peach and nectarine nursery cks.

Inspections of peach and nectarine budod sources included 50,174 tree examinans on 37 properties, and 1,565 trees were ected as unfit.

ums and Prunes

Index tests on Shiro-fugen flowering erry have shown ring spot virus to be esent in many budwood and rootstock urces of plums and prunes, but this virus s not been observed to produce recognizle visual symptoms in them under Calirnia conditions. Tests on Shiro-fugen wering cherry made for 461 budwood urce trees revealed 120 to be carrying ent ring spot virus. Tree-by-tree inspections were made of 13,801 plum and prune trees on 35 properties, including 406 trees used as seed and rootstock cutting sources; 77 trees were regarded as unfit for propagating use.

Grapes

The department's regulations for the registration of grapevines, adopted in 1956, were amended, effective August 9, 1958, to include provision for the certification of grape nursery stock. Their formulation was difficult because of the large number of table, raisin, and wine varieties involved, the variations in the methods of propagation, and the fact that specific rootstocks are used in certain districts and not in others.

Eleven mother blocks of registered grape vines were established during 1956 and 1957. Two were abandoned during 1958 because of unsuitable growing sites. During 1958, two new registered mother blocks were established, thus restoring the total of 11. Applications have been received for two additional mother blocks and to change one mother block to the status of an increase block. In addition, applications have been received to establish three new increase blocks, making a total of four. Additional inquiries indicate an increasing interest in the grape registration and certification program. Limited quantities of grape nursery stock derived from registered sources were grown by three nurseries and became available for sale as certified stock in the 1958-59 season.

Close attention was given to the mother and foundation grape plantings so as to be cognizant of any problems which might arise. Because of the limited supply of propagating material from registered sources, propagators were given assistance in locating the next best sources available. Grape nursery stock also was examined to correlate the incidence of disease in the progeny vines with that in the parent sources. Inspections included approximately 321,450 vines of nursery stock and 122,926 vines in 50 separate propagating source plantings. A total of 2,781 propagating source grapevines was found to be unfit.

Pears

Preliminary work on the inspection of pear propagating sources was initiated this year. This work included the inspection of 14,800 growing nursery trees and 488 budwood source trees, 34 of which were rejected.

GENERAL PLANT PATHOLOGY LABORATORY

Of the 3,572 specimens examined during the year for conditions caused other than by nematodes, 3,115 were received in the Sacramento laboratory, and 457 in the Riverside laboratory. Included in the total were 201 intercepted at border stations by inspectors of the Bureau of Plant Quarantine, 518 collected in 22 counties by bureau pest detection pathologists, and 393 originating in nursery stock or on nursery properties.

Laboratory findings which revealed conditions of more than usual interest included:

Pink patch caused by *Corticium fuciforme* (Berk.) Wakef. on a number of lawn specimens from several coastal counties. The apparently high incidence of this disease was associated with prolonged spring rains.

Phytophthora stem rot, severe in some shipments of asparagus, *Asparagus officinalis* L.

Yellow leaf blister on poplar, *Populus* sp., caused by *Taphrina aurea* Pers. ex. Fr., in two instances.

Twig blight on arborvitae, *Thuja orientalis* L., caused by *Coryneum berkmanii* Mil. (Second bureau record of this disease.)

Branch dieback of dogwood, *Cornus* sp., caused by *Verticillium albo-atrum* Reinke and Berth. (No previous record of Verticillium wilt on dogwood is known.)

Fruit lesions on olive, *Olea europaea* L., caused by the olive-knot bacterium, *Pseudomonas savastanoi* (E. F. Smith) F. L. Stevens. Inoculations made from tissues of affected fruits produced typical olive-knot disease in young olive trees.

Mistletoe, *Phoradendron longispicum* Trel., on olive and on peach in Riverside County.

Several diseases not new or uncommon but which may be serious or troublesome were found in nursery stock while being grown, shipped or stored, or on nursery properties. These were:

Armillaria root rot and crown gall on prune trees being removed to prepare land for propagation of grapevine and fruit tree stock.

Verticillium wilt on Japanese maple and in strawberry mother beds.

Bacterial blight caused by *Pseudomonas syringae* Van Hall on lilac.

Canker, caused by *Coryneum cardinale* Wagener, on Italian cypress.

Sclerotinia sclerotiorum (Lib.) d By., stem rot on passion vine, *Passiflora* sp., in a shipment from a midwestern state.

Stem blight on *Euonymus* sp. and root rot on stored rose plants caused by *Botrytis cinerea* Pers. ex. Fr.

Dwarf mistletoe, *Arceuthobium* sp., on Colorado blue spruce, *Picea pungens* Engelm.

Sclerotium rolfsii Sacc. on creeping bugleweed, *Ajuga reptans* L., and on common thrift, *Armeria vulgaris* Willd. These plants covered one-half acre in land previously planted in vegetables. The same organism was isolated from rhizomatous iris in 192 lots out of 207 tested from 27 out of 50 commercial propagating grounds. The infected growing grounds occurred in 6 out of 13 counties surveyed for this disease by Bureau of Nursery Service and county personnel. The survey included all commercial iris plant producers in the State.

Following are tabulations of laboratory specimens based on the type of host plant and the casual factor involved. In some instances a specimen was found to be affected by more than one causal factor.

Crop category	*Number of specimens*
Tree fruits, nuts, grapes	1,164
Vegetables	644
Flowers and herbaceous ornamentals	614
Ornamental shrubs and vines	356
Small fruits	113
Forest and shade trees	363
Cereal, forage and field crops	150
Miscellaneous (soil, turf, weeds, etc.)	168
Total	3,572

Causal factor	*Number of instances*
Fungi	1,271
Bacteria	166
Viruses	117
Parasitic flowering plants	17
Disease or condition not caused by an organism	1,530
Disease-free or negative for specified examination	389
Referred to other bureaus or agencies (insects, chemicals, etc.)	45
Undetermined	55
Total	3,590

PLANT NEMATOLOGY

During the year, 4,543 specimens were received in the Sacramento laboratory and 162 in the Riverside laboratory. They included 623 root and soil samples collected by new pest detection personnel during inspections of pear, potato, rice and tomato plantings. During a federal-state-county cooperative statewide survey for the golden nematode, *Heterodera rostochiensis* Wollenweber, of potato, bureau personnel assisted in the field collection and laboratory processing of specimen material at a temporary laboratory in Kern County. Approximately 7,400 samples, representing over 100,000 acres of potatoes, were collected at potato storage cellars, packing and grading sheds, in potato fields, and on some nursery properties. No golden nematodes were found.

County Nematology Laboratories

A significant development during 1958 was the extension of the county laboratory program. Prior to 1958 only a few counties had established laboratory facilities for the preliminary processing of plant and soil samples. Those which had done so were

Plant pathologists (left to right) Sam Gotan, Dan Rosenberg, Archie Schlocker, Carl Nichols, and Cyril Weigle dissecting crown buds from strawberry nursery plants preliminary to laboratory examination for the spring dwarf nematode. Personnel for this work was diverted temporarily from other projects to complete quickly the examination of samples representing many acres of strawberry nursery stock.

extracting nematodes from the samples and then sending the nematodes in vials to the bureau for identification. This relieved the bureau's technical personnel from this phase of the work, permitted it to use a greater proportion of its time for identification work, and enabled it to handle more specimens.

During 1958, at the request of the county agricultural commissioners, the bureau assisted additional counties in setting up laboratory facilities and prepared and supplied to all counties information describing uniform procedures and basic methods and equipment needed. Training meetings were held in Sacramento and in the counties to further explain techniques and fundamentals. By the end of the year 19 counties were operating nematology laboratories, and had sent 1,869 processed samples to the bureau during the year.

Several factors stimulated the development of these county laboratories. There has been a general increase in recognition of the economic importance of plant parasitic nematodes as plant pests. The county agricultural commissioners requested the department to assist them in an investigation of the frequency with which certain nematodes of quarantine significance are coming into California. They also requested a more intensive investigation as to what nematodes already are present and are moving intrastate. An extension of the laboratory method of examination to plants and soils in nursery growing grounds as a part of nursery inspection for nematode pests has become necessary, since visual inspection alone is now known to be inadequate. The same is true in the overall program for the detection of new pests.

Nematologists (left to right) James Breece, Winfield Hart, and Sadek Ayoub processing strawberry buds for detection of the spring dwarf nematode. The buds are being macerated in a blendor (left) to free the nematodes from the bud tissues. The macerated tissues are then sieved, washed and concentrated in a small volume of water which is placed in a Baermann funnel extraction apparatus (front, center) for at least 12 hours. Liquid from the funnels is then examined under a microscope (rear, center).

Other Activities

Bureau personnel conducted or assisted in several other projects during the year. These included the following:

A survey of dahlia and bulbous iris was made in co-operation with the Bureau of Nursery Service and the county agricultural commissioners for the potato rot nematode, *Ditylenchus destructor* Thorne. The nematode was found in four of 132 dahlia and soil samples taken in the State, and in one of 51 bulbous iris samples. The one iris sample in which the nematode was found was from a foreign importation.

Inspections for the spring dwarf nematode, *Aphelenchoides fragariae* (Ritzema Bos) Christie, were made in nursery strawberry plants in growing grounds and after digging. The nematode was found in 18 samples out of 175 examined. One hundred sixty-eight of the samples were from nurseries and seven were from intrastate shipments.

An inspection of tomato nursery plants was made in Kern County where a single plant had been found infected by a gall-forming nematode, *Nacobbus dorsalis* Thorne and Allen. The nematode was not found in other tomato plants on the nursery property but was common on filaree in a nearby area not under cultivation.

Following is a list of the kinds and numbers of specimens received for laboratory examination:

Crop category	*Number of specimens*
Tree fruits, nuts and grapes	920
Vegetables	181
Flowers and herbaceous ornamentals	844
Ornamental shrubs and vines	269
Small fruits	871
Forest and shade trees	77
Cereal, forage and field crops	220
Soils	1,138
Miscellaneous (turf, weeds, seeds, etc.)	185
Total	4,705

ureau of Plant Quarantine

. MESSENGER, *Chief*
. BREECH, *Assistant Chief*

dministration—Quarantine Laws and ulations

The Director of Agriculture has estab- ed 22 exterior quarantines against pests other states, and 16 interior quarantines nst pests of limited distribution in Cali- nia. In addition, there are 13 federal rantines against pests of limited distribu- in the United States, 18 federal quaran- s against pests in foreign countries, and federal quarantines against pests in the ited States territorial possessions, estab- d by the Secretary of Agriculture. All e and federal quarantine regulations are orced by California plant quarantine cers and by federal collaborators.

anges in Quarantine Regulations

The Sweet Potato Weevil Exterior Quar- ine was amended to add infested areas in bama, Georgia, Louisiana, Mississippi, and was, and to delete areas in Mississippi and xas.

The European Corn Borer Exterior Quar- ine was amended to remove New Mexico m the area under quarantine, and to ex- d the quarantine to cover all peppers uits).

The Cherry Fruit Fly Exterior Quaran- e was amended twice to add to the in- ted area two counties in Idaho.

The Citrus White Fly Interior Quarantine s adopted on February 7, 1958, establish- quarantine lines around a portion of City of Sacramento.

The Hall Scale Interior Quarantine was scinded on April 20, 1958.

The Club Root Disease Interior Quaran- e was amended to extend the area under arantine in San Mateo County.

The Walnut Husk Fly Interior Quaran- ne was amended to approve dehydration sundrying of English walnuts as a basis certifying nuts being moved to process- g plants outside of the area under quaran- e. This regulation was further amended add part of San Joaquin County to the ea under quarantine.

The Yellow Bud Mosaic Disease Interior Quarantine was revised to add portions of the counties of Butte, Sutter, and Tehama to the areas under quarantine, and extend the area under quarantine in Yolo County.

The list of Khapra beetle infested properties supplementing the Khapra Beetle Interior Quarantine was amended 13 times. Thirteen newly infested properties were added, 19 properties were deleted, and two properties were relisted.

The order exempting certain plant products from holding for inspection was amended to permit release of apples (except culls), apricots, nectarines, peaches, pears (except culls), plums, and prunes from Idaho, Nevada, Utah, and British Columbia, Canada; also to delete the exemption of green beans from Utah, and to exempt from inspection table beets, celery, chard, endive, peppers, and rhubarb from New Mexico.

The regulation titled "Dissemination of Weed Pests Through the Movement of Feed Grain" was adopted to take effect June 1, 1958. The regulation designated feed grain as a thing liable to be infested with pests; established a standard of cleanliness for feed grain; and prescribed conditions under which certificates of cleanliness may be issued.

A hearing was held in Sacramento on June 30, 1958, to consider modification of the Cotton Pests Exterior Quarantine. The results of the hearing indicated that no changes should be made in this regulation.

Maritime Inspection Service

Maritime inspections covered 9,426 vessels and 4,584 airplanes. Oversea airplanes cleared in Hawaii by U.S.D.A. inspectors totaled 7,378. This service created huge savings for the bureau. If these airplanes had been inspected in California, it would have created a big job for state inspectors. Plant material refused entry when found on these vessels and airplanes totaled 28,794 lots with 4,384 being treated and released. Inspections conducted by county agricultural

commissioners' personnel at the smaller ports occurred on 270 vessels with contraband being found on 114, necessitating safeguard action. The major portion of this work occurred in Stockton. Examination of these total items disclosed the presence of 16,869 pests. The following list includes the most important ones.

Hawaii Interceptions

Fruit flies, 25; bean butterflies, 21; bean pod borer, six; burrowing nematode, four; green coffee scale, 12; lesser snow scale, three; mango seed weevil, 21; pink bollworm, one; sweet potato scarabee, two; sweet potato weevil, one; tea scale, three.

Foreign Interceptions

Fruit flies, 21; avocado seed moth, one; camphor scale, 15; citrus white fly, six; European corn borer, one; false codling moth, one; lesser snow scale, eight; mango seed weevil, two; pickleworm, three; pink bollworm, one; rufous scale, eight; sweet potato scarabee, one; tea scale, one; citrus canker, 72; sweet orange scab, nine; golden nematode, eight; root knot nematode (*Meloidogyne arenaria*), 18.

Interstate Interceptions

Lesser snow scale, eight; a snail (*Pleurodonte incento*) on pothos cuttings from New York, origin Puerto Rico.

Eleven hundred and ten head of cattle arriving from New Zealand were retained under quarantine for observation before being released for slaughter. One ton of feed hay and grain was safeguarded aboard the ship transporting this stock from New Zealand. A new arrangement of using large van-type containers for shipping fresh Hawaiian pineapples under refrigeration was inaugurated by one steamship company. This method insured safe handling and prompt unloading of the fruit. Nearly 2,800 reports about foreign meat and animals were directed to the Division of Animal Industry and the U. S. Animal Inspection and Quarantine Division. Permits to remove meat stores from ships were issued 638 times. More than 10,000 export certificates were prepared to cover fruit and vegetable shipments to foreign countries.

Border Inspection Service

Border station reports show a continued increase in the number of vehicles inspected over the previous year. A total of 4,302,826 cars were inspected in 1958, compared with 4,052,006 in 1957. Commercial trucks inspected in 1958 totaled 383,543, as compared to 375,800 in 1957. There were 48,401 stages inspected, a decrease of 650 when compared to the total inspected in 1957.

There was an increase of 186,989 in the number of cars with California license. The out-of-state licensed cars increased 63,831.

A total of 12,402,544 passengers entered the State through border stations in all types of vehicles in 1958, representing an increase of 374,503 over 1957. Traffic showed an increase through all border stations.

Over one-half of all highway vehicular traffic entering the State was inspected at the southern border stations.

Ninety thousand eight hundred seventy-five lots of plant material were intercepted for violation of provisions of the Agricultural Code. Inspection of this material resulted in the finding of 22,313 lots of pests which consisted of 13,782 lots of insects, 7,635 lots of disease, and 896 lots of noxious weed seeds.

The following is a list of important pests intercepted and the number of times each was taken in 1958:

Cotton boll weevil, 15; plum curculio, 165; sugarcane borer, three; sweet potato weevil, one; citrus white fly, 42; pickleworm, two; pecan shuck worm, 79; Colorado potato beetle, one; pink bollworm, five; Japanese beetle, one; European corn borer, 69; cherry fruit fly, 178; pecan nut weevil, nine; walnut husk fly, 64; apple maggot, 439; and southwest corn borer, two. White horsenettle, 89; Carolina horsenettle, 16; Canada thistle, 80; Russian knapweed, eight; hoary cress, five; leafy spurge, one; quackgrass, two; Johnson grass, 221; wild morning glory, 19; and yellow star thistle, one.

Many pests not the subject of specific quarantine restrictions would prove detrimental to the agricultural industry of the State should they become established here. Some of the more important of these, intercepted at border stations, were:

Plum gouger, coconut scale, mango scale, Mexican bean beetle, tea scale, lesser apple worm, Howard scale, squash vine borer, Forbes scale, palm mealybug, cherry curculio, sweet potato leaf beetle, and apple curculio.

A total of 116,133 produce trucks were inspected to determine compliance with fruit and vegetable standardization laws. Eighty one thousand six hundred twenty-five of these trucks were outbound, and 34,508 were bringing produce into the State.

The heavy volume of feed grain entering this State by truck through border inspection stations continued throughout the year. There was a total of 520,968 tons of feed

is report is compiled and presented for the purpose of showing quarantine workload by various counties on comparative basis. In order to provide more uniformity in recording plant quarantine inspections, a conversion art was developed by the Quarantine Committee of the State Association of County Agricultural Commis- ners. The chart converts all bulk commodities to units. This enables commissioners to convert bulk material on the same basis. The result is uniformity in reporting.

Interior Inspections

	INTERSTATE				*INTRASTATE*			
unty	*Shipments passed*	*Plants or units passed*	*Shipments rejected*	*Plants or units rejected*	*Shipments passed*	*Plants or units passed*	*Shipments rejected*	*Plants or units rejected*
ameda	23,049	1,420,589	192	11,165	4,380	12,766,106	5	501
nador	487	8,193	4	21	92	4,034	—	—
tte	3,742	170,187	63	1,096	1,001	4,152,716	83	11,072
laveras	651	8,510	7	94	195	42,830	—	
lusa	456	7,726	22	22	226	27,749	—	—
ntra Costa	10,657	590,365	71	1,741	2,193	739,193	4	306
l Norte	1,110	117,527	30	903	239	9,059	1	242
Dorado	1,053	46,569	1	2	170	37,577	—	
esno	7,242	388,154	45	102	7,104	2,837,401	169	431
enn	900	15,183	2	76	383	804,862	12	5,898
umboldt	4,703	411,052	31	1,671	1,322	604,410	17	1,830
perial	3,322	151,823	102	9,184	310	832,690	12	908
rn	8,572	586,553	61	611	3,151	2,371,490	23	10,608
ngs	1,829	22,482	78	113	1,180	126,650	5	33
ke	873	35,515	6	70	171	30,907	3	57
assen	683	24,534	1	1	85	7,412	—	—
s Angeles (Co.)	118,925	5,477,149	3,339	52,077	9,349	19,860,481	261	16,722
* San Pedro (Sta.)	3,452	142,987	1,469	7,244	—	—	—	—
adera	1,262	20,016	5	617	493	249,254	6	55
arin	2,659	95,768	12	27	729	245,466	—	
endocino	3,503	81,232	3	47	2,111	146,806	13	12,186
erced	1,426	99,906	28	52	1,717	8,791,539	16	243
odoc	531	16,677	1	12	71	33,671	—	—
onterey	2,587	117,564	245	911	732	19,137,965	10	184
pa	2,038	98,755	19	656	1,469	1,874,162		—
evada	79	4,225	—	—	295	68,890	—	—
range	7,415	618,293	361	3,820	5,625	14,940,605	20	290,028
lacer	1,926	136,087	10	4,513	795	150,214	14	4,629
umas	80	2,464	—	—	10	109	—	—
iverside	11,377	11,538,517	593	228,374	3,532	5,507,648	96	22,432
cramento	15,757	2,555,854	363	14,871	23,663	67,727,370	10	970
n Benito	389	11,681	5	7	77	6,263,666	15	101
n Bernardino	13,503	602,205	1,411	2,287	3,149	1,076,386	57	1,174
n Diego (Co.)	27,252	820,614	327	1,818	4,342	766,089	31	868
* San Diego (Sta.)	1,172	822,581	22	2	—	—	—	—
n Francisco (Co.)	170	88,840	—	—	654	103,653	10	—
* San Francisco (Sta.)	78,347	20,322,963	223	2,894	—	—	—	—
n Joaquin	18,536	464,573	650	123,498	189,542	54,825,206	1,184	140,279
n Luis Obispo	2,033	1,856,452	5	39	1,775	28,992,036	8	337,000
n Mateo	9,351	5,970,229	52	15,672	5,012	2,781,139	11	36
nta Barbara	3,668	164,665	22	189	2,801	5,760,041	2	101
nta Clara	12,842	4,787,154	356	20,194	3,935	39,425,906	38	114
nta Cruz	2,757	9,583,435	33	3,956	1,582	15,315,205	38	18,562
hasta	2,759	728,193	15	165	324	240,682	4	4
skiyou	1,963	260,875	38	497	332	42,610	—	
olano	5,581	81,202	47	472	1,008	31,953,509	1	411
onoma	9,676	404,964	162	1,017	1,374	257,824	37	29
anislaus	7,303	1,161,282	154	1,567	3,303	3,536,936	85	1,971
tter	1,436	584,267	48	47,830	1,032	27,490,343	503	4,765
ehama	2,096	27,033	—	—	317	97,164	—	—
ulare	2,851	7,269	13	13	2,689	405,572	3	195
uolumne	123	1,645	—	—	168	14,054	—	
entura	3,191	17,663,410	23	1,050	8,750	44,766,275	163	146,361
olo	3,107	2,169,498	112	7,367	1,311	114,086,885	7	192
uba	953	21,521	7	162	519	5,059,832	11	10,137
Totals	453,405	93,617,007	10,889	570,789	306,789	547,390,279	2,988	1,041,204

grain inspected, of which 38,977 tons were corn; 218,902 tons milo; 195,155 tons wheat; 37,843 tons barley; 20,333 tons oats; and 9,758 tons of other grains.

All incoming truck shipments of feed grain were inspected to determine compliance with state exterior quarantine requirements and the standard of cleanliness set in the Feed Grain Regulation for weed seed pests.

Plans were completed and the site prepared for a new station at Truckee on the new freeway. Plans were completed for the new station at Twentynine Palms. Because of a realignment and the installation of a new freeway, it is necessary to replace the existing inspection station at Blythe. Bids will be called for construction of the station buildings early in 1959.

Bureau of Rodent and Weed Control and Seed Inspection

WALTER S. BALL, *Chief*
JAMES W. KOEHLER, *Assistant Chief*

WEED CONTROL

Imperial Valley Johnson grass infestations of about 150 acres, centered in the northeast part of the valley, have been almost eliminated in recent years, except for two or three acres in the southern part of the district. Quarantine, chemical and cultural measures combined to hasten the eradication program.

The adoption of statewide feed grain regulations apparently is stimulating more interest in regulatory weed control. Since adoption of the regulations, the bureau has received more inquiries relative to the control of noxious weeds in cereal crops.

Weed control developments during the year also reflected greater interest in specific herbicides for specific uses. There was also a trend toward greater use of granular and pelleted soil sterilants. Large quantities of this type of material were used by the counties for the control of perennials and roadside weeds. Special power spreaders have been constructed for the application of the material.

Trends in Herbicides

A review of the herbicide situation in California for the year of 1958 shows the following:

The demand for hormone-type weed-killers was variable. Use of the emulsive acid form of 2,4-D showed a definite increase. There was increased usage of the sodium salt of 2,4-D for selective weed control in asparagus. Moderate increase in usage was reported for 2,4-5-TP for the control of live oak sprouts and salt cedar in areas where cotton is grown. The amine and sodium salt forms of MCP showed increased usage in rice weed control. The demand for low volatile esters of 2,4-D and 2,4,5-T and brushkillers continued to decline. Benzoic acid, a recently introduced hormone-type soil sterilant herbicide, was received with much interest.

Amino triazole continued in strong demand for the control of herbaceous perennial weeds, woody plants, cattails and general weeds on roadsides.

Demand for straight borate herbicides continues with little fluctuation; borate-chlorate mixtures gradually increased; and borate-substituted urea combinations and borate-2,4-D combinations continued in strong demand.

Carbon Bisulphide. Sharp decline in use was apparently due to conflict between unfavorable weather conditions and normal farming operations. Approximately 550,000 pounds of carbon bisulphide were used for weed control, mainly for treating morning-glory.

Dalapon. Steady increase in usage.

Erbon. No significant change.

IPC and Chloro IPC. Granular forms in demand.

Selective and contact dinitro herbicides. No significant change.

Simazine,[1] a triazine compound, recently introduced as a soil treatment herbicide, was received very favorably.

Urea Herbicides. Monuron in increasing demand.

Weed Oils. Little fluctuation in selective oils reported. The trend in contact oils apparently is downward.

Special Weed Problems

Austrian fieldcress *(Rorippa austriaca)*. During mid-June, a lightly scattered 362-acre infestation of Austrian fieldcress on the county-state project at Likely, Modoc County, was sprayed by airplane with the amine salt form of 2,4-D at the rate of two pounds of acid equivalent per acre. A total of $934 was spent for the operation. Control results appear very satisfactory.

The control program has progressed to a point where most of the remaining infestations are confined to permanent pastures; infestations on lands devoted to grain production have been nearly eliminated.

Blueweed *(Helianthus ciliaris)*. A plant collected on the Nimitz Freeway at Hayward was identified as blueweed and reported to the Alameda County Agricultural Commissioner's Office. The 12-square-rod infestation, which involves part of a landscape planting, is the only active location in Northern California.

Bureau representatives recommended methods and procedures for controlling the blueweed infestation and control measures were undertaken by the Alameda County Department of Agriculture by arrangement with the State Division of Highways. Control involved removing some of the shrubs, burning the affected area, and treating the infestation with carbon bisulphide. Patroling will be a major item in future control work.

Camelthorn (*Alhagi camelorum*). This season the county-state camelthorn operation in San Bernardino County began in May. Ten acres of camelthorn at Hinkley were sprayed by ground rig with the low volatile ester of 2,4-D. In June, a recently discovered five acre infestation was treated in a similar manner at Daggett, and the 180 acre Afton Canyon infestation was sprayed in June 30th and July 1st by airplane.

At the latter place an August inspection showed camelthorn control, aimed mainly at seedling growth, very satisfactory but the control of established plants at Hinkley and Daggett was unsatisfactory. Evidence indicates that at these places it will be necessary to more closely schedule treatments in relation to plant growth, rather than to treat according to a calendar date. Apparently, the abnormally high rainfall in the area during the preceding spring and winter upset the customary time table for spraying.

In Riverside County, camelthorn control developments on the county-state project at Coachella mainly involved the removal of brush and woody plants to facilitate the findings of camelthorn plants. Treatments at this location have reduced camelthorn to a low level.

Under Kern County's diversified agriculture, three kinds of herbicides have been adapted to the various situations involving operations of the county-state camelthorn project.

The emulsive acid form of 2,4-D is used for controlling large camelthorn infestations in dry land pastures; a dilute solution of sodium arsenite is used as a translocated herbicide by the can or jar method; and carbon bisulphide is used as a sterilant for treating infestations in row crops, such as cotton. Current fiscal operations involved expenditures of $594.42 for the operation.

The project has progressed to a point where patrolling represents a major phase of the work. In this connection, a one-half acre infestation of camelthorn was found in the Pond area.

Patrolling is also a major phase in the operation of the county-state camelthorn project in Merced County. The project, located in the dairying community of Gustine, involves controlling camelthorn in dry land pastures and alfalfa hay fields.

Hoary cress (*Cardaria* spp.). A concerted campaign against hoary cress in Shasta County shows what can be done with the proper use of chemicals.

Six hundred infestations totaling 2,000 acres, centered in the Fall River Mills and McArthur districts, treated in the spring of 1957 with the emulsive acid of 2,4-D as a foliage spray and in the winter with a 2,4-D-borate mixture as a soil sterilant. As a result of this continuing work, 95 percent of the infestations have been eliminated. Of the several species of hoary cress scattered in the county, *Cardaria pubescens* represents the main species in the Fall River Mills and McArthur area.

[1] Trade name used for explanatory purposes only.

TABLE 1

Summary of Expenditures and Area Treated for Weed Control From Reports of Agricultural Commissioners

County	*Dollars*	*Acres treated*	*Miles treated*
Alameda	4,107.90	827	
Amador	6,572.22	105	898
Calaveras	3,737.27	22	3,441
Colusa	11,269.65	88	3,556
Contra Costa	15,407.60	657	
Del Norte	1,012.89	1,167	49
El Dorado	1,741.34	40	616
Fresno	159,284.97	620	4,054
Glenn	11,129.00	10	1,815
Humboldt	19,912.60	481	1,019
Imperial	49.14	Scattered	
Kern	390.06	(3620 camelthorn plants)	
Kings	5,729.49	4,954	486
Lake	2,578.55	162	223
Lassen	795.00	816	33
Los Angeles	56,593.85	1,279	6,945
Madera	19,828.76	23	7,228
Marin	6,224.70	246	153
Mendocino	1,413.28	74	2
Merced	37,798.31	109	3,564
Modoc	1,850.33	610	
Monterey	4,576.61	233	482
Napa	4,721.95	roadsides only	
Nevada	942.97	183	64
Orange	22,962.98	19,340	1,507
Placer	832.20	40	2
Plumas	2,244.46	34	254
Riverside	19,178.10	4,326	885
Sacramento	13,923.20		
San Benito	14,599.77	10,139	12,092
San Bernardino	9,301.33	716	26
San Diego	23,585.31	1,691	
San Joaquin	100,081.48	2,015	
San Luis Obispo	7,350.00		
San Mateo	4,138.19	393	
Santa Barbara	15,297.82	749	283
Santa Clara	6,676.25	2,612	
Santa Cruz	1,193.17	182	
Shasta	17,082.73	1,138	
Siskiyou	26,272.10	1,833	1,681
Solano	10,538.21	374	
Sonoma	6,200.00		
Stanislaus	37,403.44	1,503	1,040
Sutter	7,400.00	20	400
Tehama	9,405.89	294	1,755
Tuolumne	7,343.08	65	145
Ventura	5,007.97	99	
Yolo	34,707.99	311	13
Totals	$780,394.11	60,580	54,711

TABLE 2

Materials Used and Costs

Sodium chlorate	26,422 lbs.
Borax	26,350 lbs.
Borate-chlorate mixtures	109,406 lbs.
Borate-CMU mixtures	65,410 lbs.
Borate-2,4-D mixtures	15,527 lbs.
Petroleum oils	627,871 gals.
Carbon bisulphide	41,954 lbs.
Dalapon	14,360 lbs.
Amino triazole	11,059 lbs.
Monuron	31,841 lbs.
Diuron	540 lbs.
Ammonium sulfamate	1,066 lbs.
Sulphur	10,784 lbs.
Dinitro	2,267 gals.
Simazin	1,392 lbs.
TCA	5,035 lbs.
2,4-D esters	1,481 gals.
2,4-D amine salts	3,053 gals.
	187 lbs.
Emulsive acid of 2,4-D	286 lbs.
Brushkiller	636 gals.
2,4,5-T	497 gals.
2,4-D (formulation not indicated)	1,702 gals.
	1,656 lbs.

Total cost of chemicals $305,021.08

Other Weed Problems

Halogeton glomeratus. The beginning of containment rather than suppression highlights the 1958 county-state halogeton program in Lassen County. At season's end, inspection revealed that halogeton had been contained within the old control area situated on the Amadee-Herlong-Stacy-High Rock Ranch axis.

The Sierra Ordnance Depot's halogeton control operations, on a somewhat reduced scale from 1957, involved controlling large buffer areas on the military reservation adjacent to the county-state project, and also adjacent to free areas.

The U. S. Bureau of Land Management carried on a full scale control program as in previous years. BLM operations were more or less routine, except for the finding of two rather sizeable infestations in its zone of control. At Karlo a 35-acre infestation of halogeton was discovered during a routine soil analysis survey in August. The infestation was immediately treated with 2,4-D. Subsequent to this discovery, another 10 acre infestation was found nearby but the plant growth was too far advanced for successful treatment.

As in previous years, representatives from the bureau office conducted a halogeton survey in the Bridgeport and Bishop districts. Findings were negative.

The State Seed Laboratory's stored halogeton seed longevity germination experiment, in its eighth year, shows that the indurate bract seed (brown seed) still remain viable. Removal of the bracts resulted in a germination rate of 36 percent, the lowest of any previous test. The test shows that this type of seed, stored under dry conditions, has a long life. Under this experiment, the seeds with papery bracts (black seed) were shown to have a much shorter life (three years).

Tansy ragwort (*Senecio jacobea*). Current reports show that tansy ragwort, a plant poisonous to livestock, infests 10,002 acres

the Counties of Mendocino (400 acres), mboldt (two acres, recorded in 1958), Del Norte (9,600 acres). The rapid ead of this short-lived but prolific peren- is of increasing concern to official agri- tural agencies, stockmen's associations ranchers.

o far, attempts to eradicate tansy rag- rt in Del Norte County, where an or- ized control program is in progress, have ven somewhat discouraging. The elimi- ion of large infestations seems improb- e unless biological control can be de- oped.

st Abatement Districts

The Big Valley Pest Abatement District Lassen County treated 485 acres and 65 es of roads for whitetop control with -D, 10.5 acres of yellow star thistle with -D and diesel oil, and 88.4 acres of Rus- n knapweed with 2,4-D. Whitetop and ssian knapweed infestations were sub- ntially reduced over the previous year.

The Lookout Pest Abatement District in doc County continued to furnish equip- nt and materials to ranchers for hoary ss and Russian knapweed spraying.

The Stronghold Pest Abatement District, doc County, employing a laborer part- e for the summer, directed its efforts at ntrolling quackgrass and five-hook bassia.

ANT IDENTIFICATION AND SURVEY

During the year 1958, a total of 1,883 plant ntifications were made, of these 1,675 re made in the Sacramento office; 208 re reported from the Los Angeles office. the 550 identifications made of material ercepted at the border quarantine stations, samples contained viable propagative terial of noxious weeds.

The following items show extension of tribution or unusual occurrence:

Andropogon virginicus, broomsedge, an unpal- ble range pest, was collected from the San quin River bank north of Fresno.

Axonopus compressus, tropical carpetgrass, was lected growing as a weed in a lawn in Car- hael, Sacramento County.

Brassica geniculata, summer mustard, a common d of Southern California, was the cause of otosensitization in cattle in Ventura County.

Brassica kaber, charlock, occurred as seeds in ge amounts in barley screenings in San Joaquin nty. When the screenings were ground and ed with pelleted feed, hungry hogs refused to them. The release of mustard oil from the ds was sufficiently irritating to keep the animals m the feed.

Cannabis sativa, marijuana, was found growing in planter boxes outside a hotel in Sacramento.

Conium maculatum, poison hemlock, was present in hay that caused the death of a calf.

Cotyledon orbiculata, a somewhat shrubby succulent, was the cause of death of three sheep in Novato, Marin County.

Cynara cardunculus, artichoke thistle, appeared on the markets as dried floral heads, some of which contained viable achenes.

Datisca glomerata, Durango root, caused the death of a cow at West Point, Calaveras County.

Dieffenbachia picta, dumb plant, a common indoor ornamental, caused the hospitalization of a child in Orange County. The plant contains considerable quantities of calcium oxalate in the form of bundles of needle-sharp crystals, which are extremely irritating mechanically to the mucuous membranes.

Elymus triticoides var. *pubescens,* a variety of beardless wildrye, was found along an irrigation ditch near Lodi, San Joaquin County.

Euphorbia oblongata is the proper name of the tall perennial Euphorbia in Contra Costa and San Joaquin Counties. Material of this species sent to the Royal Botanic Gardens, Kew, England, received this identification. These records are the first for North America at Kew Herbarium.

Helenium autumnale, common sneezeweed, was reported as taking over considerable areas of wet meadows near Ft. Jones, Scott Valley, Siskiyou County.

Myoporum laetum,[1] an ornamental shrub called Njaio in its native New Zealand, was the cause of death of a cow and distress of several other cows in a dairy feed lot in Cypress, Orange County.

Nitrates occurring in excessive amounts in plants continue to cause livestock loss in the State. A sample of barley hay tested 0.55 percent nitrates while the *Brassica kaber,* charlock, a weed in this hay, showed the 2.72 percent nitrates, well above what is considered a toxic level.

[1] See Quarterly Bulletin Vol. 47, No. 4, 1958.

Johnson Grass and Grain Sorghum cross in field of Hybrid Grain Sorghum in Yolo County.

Oenothera rosea, a strongly rooted perennial, native from Texas and southern Arizona to Peru, was reported as a weed in the Los Angeles State and County Arboretum.

Onopordum acanthium, Scotch thistle, was collected at Cobb Valley, Lake County and Alturas, Modoc County. The largest infestation was found at Adin, Modoc County, extending into Lassen County.

Paspalum dilatatum, Dallis grass, infected with *Claviceps paspali,* ergot, caused trouble with livestock. Severe skin cracking and emaciation from this cause developed in six heifers in Madera County.

Phaseolus limensis, Lima bean, showed a positive test for prussic acid. The hulls, vines and beans left over from freezer processing were fed to hogs, causing sudden death of 58.

Physalis lanceifolia, lance-leaved ground-cherry, appeared as a contaminant in hay in Yuba County. Cows fed this hay developed loss of appetite, swollen udders and watery milk. This same species was suspected as contributing to the loss of sheep near Chico, Butte County.

Plantago virginicus, a small plantain, was sent in for identification from Hanford, Kings County, where it was found as a turf weed.

Sorghum. Hybrid grain sorghum fields produced off-types of several kinds. The crosses of grain sorghum with Johnson grass were of concern because of the production of perennial rhizomes.

Sporobolus cryptandrus, sand dropseed, a tufted perennial grass, appeared as a waif in a field of other grasses being grown for seed production.

Vicia faba, horsebean, a common vegetable crop, caused a near fatality on ingestion by a human. Immature beans are said to be the most poisonous, containing a gluco-alkaloid that produces anemia. Only fungus-infected beans are thought to be toxic.

Vigna sinensis, cowpea, were fed uncooked to 600 head of hogs of all ages. Feeder hogs of 120 to 130 pounds were affected; 102 died and an additional 24 showed symptoms. Sows and fat hogs were not affected.

Vinca major, periwinkle, apparently caused the death of a cow in Marin County. The pasture was heavily infested with this escaped ornamental growing as a weed.

Xanthium campestre, a very large-fruited cocklebur, was submitted for identification from Sutter County. This native species, previously confined to a small area of Butte County, now is spreading by water down the Sutter Bypass. This species is apparently hybridizing with *Xanthium italicum,* as a number of intermediate types were found mixed with the two parent species.

RODENT CONTROL

Ground Squirrels

Heavy rainfall during the early part of 1958 seriously hampered control work in many areas. In some districts breeding season programs were not carried on due to bait refusal and later control of young squirrels was often unsatisfactory due to erratic bait acceptance. Difficulties continued as a result of dense grass growth which made the finding of burrows difficult and requiring a slow and costly inspection while treating properties.

During the year the bureau was represented at several rodent control meetings in various counties. One, called by the Tulare County agricultural commissioner, was attended by 50 stockmen, representing a third of the rangeland in the eastern part of the county. A decision to treat one-third of the area each year on a rotating basis, rather than the entire area, will make for increased efficiency.

Personnel of the bureau assisted a group of Mariposa County ranchers in organizing a ground squirrel program and arranged for the use of mixing facilities in a nearby county.

Meadow Mice

In Siskiyou County limited control work was carried on in Butte Valley and Tulelake. In Modoc County control was needed at Tulelake, principally on areas not troublesome in 1957. There was a significant outbreak from Likely south of Alturas and nearby areas of Alturas to Cedarville and Lake City. Many of these infestation were in alfalfa and clover and comprised the bulk of the work in Modoc County this year. Some widely separated areas of Lassen County required control measures. Spotted infestations in Sierra Valley of Plumas County required control.

In the Coleville area of Mono County some control work was needed this year. At Bridgeport, the scene of severe meadow

A portable power spreader for pelleted sterilants. Photo courtesy of Napa County Department of Agriculture.

asture damage last year, only a trace of the rmer population was evident.

Microtus damage occurred to pear trees in l Dorado, Placer, Nevada and Yuba Coun-es. In the coastal counties, mouse control as carried on in plantings of alfalfa, straw-erries, artichokes, squash, brussels sprouts, uliflower, sugar beets, orchards, in vine-ards, and pastureland, and in a commercial olly planting. In Santa Clara County a 70-re Harding grass planting grown for seed as severely damaged with a 60 percent ss to the grower. Grapevines were girdled nd young shoots eaten in Sonoma County. ver 500 citrus trees in a single grove in an Bernardino County were girdled, neces-tating extensive bridge grafting. In River-de County nearly 500 citrus trees were lost ue to girdling of the trees by meadow ice. The most outstanding loss was 300 ees from a grove in Temescal Canyon in ne early spring.

A die-off of white-fronted and snow geese ok place in the Tulelake area on March st as a result of a consumption of 1,080-eated whole oats exposed on bare ground r mice. More than 500 birds were found. ontrol work was immediately stopped in is area of California until the geese had igrated. It was believed that colored baits ould not be taken by geese but tests later etermined that these waterfowl do not xhibit marked color consciousness. Several eeks later uncolored zinc phosphide bait xposed in Klamath County, Oregon, was esponsible for killing more than 2,300 geese f the same species. Most of these were ound in the Tulelake and Lower Klamath asin of California.

ophers

Crop damage continued at a high level in reas where sprinkler irrigation is used. oison baits have not given adequate control r crop protection.

ats

The past fall and winter has witnessed an ncreased population of rats in some San rancisco Bay area counties. The Sonoma ounty agricultural commissioner's office old 13,155 pounds of bait in 1958, compared o 6,181 pounds in 1957. Most of the sales ere made to poultrymen. The Contra osta County Board of Supervisors on July st directed the county agricultural com-issioner to begin a countywide rat control rogram. Funds, equipment and manpower were authorized to control rats in creeks, sewers, garbage dumps and along waterfront areas. Total cost of the program was $10,378.85 for 1958.

Muskrats

Control of muskrats has taken place to a much greater extent than in past years. Several irrigation districts are conducting control programs by the use of fumigants, trapping and floating bait boxes. Considerable success has been obtained by using carbon bisulphide as a fumigant after water has been drained from canals and burrows are exposed. A recent development is the use of partially submerged barrel traps. A runway leads to the top of the barrel which is covered by a hinged lid which drops the animal into the barrel. The Imperial County Irrigation District maintains 600 floating bait boxes in the canal system and the Palo Verde Irrigation District has adopted the program on a year-round basis.

CONTROL OF DISEASE-BEARING RODENTS

Control of field rodents for disease suppression is carried on in co-operation with the State Department of Public Health. Recreational areas were inspected periodically by representatives of both departments to determine whether the rodent population had built up to a degree where control was necessary.

In areas where rodents harbor diseases, the following operations have been carried on in co-operation with the United States Fish and Wildlife Service and the counties involved:

Area treated	1,151,321	acres
	621	premises
Strychnine bait	8,017	pounds
Thallium bait	8,841	pounds
Zinc phosphide bait	4,644	pounds
1080 (sodium fluoroacetate) baits	25,922	pounds
Anticoagulant baits	10,569	pounds
Carbon bisulphide	9,479	pounds
Jute waste balls	2,230	balls
Methyl bromide	1,723	pounds

Total cost of plague area operations for the year $99,382.12

Nutria

Enforcement of the law relating to nutria, formerly administered by the Department of Fish and Game, was transferred to the State Department of Agriculture and the county agricultural commissioners on July 1, 1958.

Granting of permits to hold nutria proceeded slowly during the early months as many breeders found it necessary to improve the holding pens to conform with the requirement of the law pertaining to escape-proof pens. For 1958, 276 permits were issued.

Instances of nutria having been released or escaping were reported during the year. Near Snelling, Merced County, several nutria were found feeding near a stream. Immediately after the discovery, 29 animals were shot by Merced County Department of Agriculture personnel and three other carcasses were found. County and United States Fish and Wildlife Service trappers accounted for 28 additional animals, making a total of 60 taken from this area at an expense of over $1,900 to Merced County. All animals were taken within 300 yards of the original find. In Fresno County one nutria was captured in an irrigation canal about two miles from where a truckload overturned and burned earlier in the year. Six nutria were caught by the county trapper in Monterey County where several unconfined animals had been reported.

In other states, where nutria have escaped and become established, the animals are in competition with migratory wildfowl for natural food in marshes and have been reported as damaging levees and canal banks by burrowing. Damage to agricultural crops such as rice, sugarcane and corn, has also been reported from areas in other states where wild nutria have become well established.

Undomesticated Burros

During the year, surveys of the undomesticated burro population in the southeast desert areas of California were made in co-operation with the Department of Fish and Game, the U. S. Fish and Wildlife Service, the Bureau of Land Management, and the National Park Service. Estimates indicated that there are in excess of 4,000 undomesticated burros in the general area. The surveys also indicated that the burro herds in areas near Death Valley National Monument were becoming so large that the food supply was being depleted and the desert browse on rangelands was being destroyed beyond recovery. It was also pointed out that certain desert areas, where livestock does not range, will not support a burro population because water is not available.

During the year 165 permits to capture undomesticated burros for use as pets or beasts of burden were granted. Sixteen permittees report that they had captured a total of 59 burros.

The law provides that any owner or tenant of land or property being damaged or destroyed by burros may apply to the Department of Agriculture for a permit to kill such burros. One permit to kill 25 burros was issued after an investigation substantiated the claim that burros were causing damage to property.

BIRD DAMAGE

Santa Clara County growers experienced heavy losses to cherries, prunes and apricots by band-tailed pigeons. These birds ate and knocked fruit from trees. Damage to apricots also occurred in the Hemet Valley in Riverside County. Orchardists were particularly concerned due to the light crops caused by adverse weather conditions and, with the pigeon damage, they suffered considerable loss. Band-tailed pigeons caused damage to apples in the Watsonville area by roosting in the trees in such numbers that they knocked down the fruit and broke the limbs. Reports were received from Yolo and Butte Counties of pigeon depredations in almonds. There was increasing damage in Imperial Valley by horned larks. Crows damaged apples and cherries in San Diego County and also damaged nut crops in Tulare and Merced Counties. The eastward migration of the yellow-billed magpie from the westside of the San Joaquin Valley to the almond growing area near Delhi, Merced County, is a matter of concern. There is evidence of considerable damage to almonds by this bird.

Linnets

For years grape growers in the Exeter area of Tulare County have experienced heavy losses resulting from the pecking of choice table grapes by linnets. Damage is exceptionally heavy in vineyard rows adjacent to citrus plantings which provide an ideal habitat for these birds. In the fall apricot, almond and plum trees in this area suffered severe disbudding attacks. Spot control by individual growers was not adequate to materially reduce the damage. During 1958, more than 50 growers requested a unified control program. The Tulare County agricultural commissioner assigned two men to the problem and to the supervision of unified control procedure. Control of linnets

was begun before the end of the year to prevent disbudding and to lessen the later damage to maturing figs, apricots, peaches and grapes.

In the Half Moon Bay-Pescadero area of San Mateo County, linnets severely damaged 360 acres of flax with losses running from 10 to 85 percent of the crop. The birds descended on the flax fields when the crop was in the green boll stage. As the crop matured the severity of the damage increased due to the shattering of the mature bolls.

Blackbirds

Blackbirds continue to cause heavy losses to crops in the Imperial Valley, in addition to their heavy consumption of grain and high protein feed taken from the cattle feeding yards in the area. Damage to some small plantings of grain and sorghum in Lake County was reported to run from 15 to 80 percent. Blackbirds also caused damage to long chili peppers in the Escondido area, San Diego County.

European Starlings

Overwintering starling flocks departed prior to April 1st without having increased to the numbers reported last year.

Of interest are reports of nesting attempts from San Bernardino, Mono, San Joaquin and San Luis Obispo Counties. The San Luis Obispo County report includes a picture of the female at the nest site and the statement

TABLE 3

The following tabulation denotes the bird control work carried on in the State as reported by county agricultural commissioners.

Bird species	Number premises	Strychnine bait pounds	Costs dollars
English sparrows	1,037	6,123	3,985.84
Blackbirds	117	1,295	1,096.44
Bluejays	2	1	81.48
Linnets	873	5,773	3,720.04
Magpies	6	9	38.10
Pigeons	17	57	127.45
Crows	20	314	276.10
Crowned sparrows	338	1,460	469.82
Horned larks	510	10,026	3,983.93
Totals	2,920	25,048	13,779.20

that six young taken from the nest May 26, 1958, were preserved as specimens. These young appear to be in two age groups. Other pairs of adult birds were observed carrying grasshoppers, presumably to nearby nests. There have been nesting attempts in former years in Modoc County, as early as 1949, and more recently in July of 1956, adult birds were seen feeding young at the town of Likely.

Some evidence of depredation was seen in consumption of poultry feed in Marin County, heavy feeding on stock feed in cattle feed lots in Fresno County, and severe damage to 75 acres of biennial rye in Lassen County. Fall arrival of starlings was noted near October and by the end of the year the birds were well scattered over most of

TABLE 4

The following tabulation denotes the extent of the economic rodent control as reported by the county agricultural commissioners.

Pest animal	Acres treated	Control costs dollars	Pounds of toxic baits				
			"1080"	Strychnine	Zinc phosphide	Thallium sulphate	Anti-coagulants
Ground squirrels	4,014,611	369,260.79	167,803	76,536	52,838	2,838	1,714
Gophers	95,321	14,689.00	389	42,777	—	—	—
Meadow mice	51,627	20,565.94	57,965	9,477	70,534	—	2,825
Jackrabbits	28,580	2,303.18	—	11,120	7	—	173
Kangaroo rats	40,268	436.45	—	4,098	—	—	—
Muskrats	328	219.07	—	3	—	—	—
Badgers	16 [1]	279.22	—	—	—	—	—
Chipmunks	116	156.81	—	—	—	—	92
Moles	553 [2]	1,078.17	34	—	—	—	—
Rats and mice	(13,416 premises)	42,857.43	4,027	500	16,316	—	72,278
Total	4,231,420	451,846.06	230,218	144,511	139,695	2,838	77,082

[1] Plus 20 premises. Control accomplished by gassing with methyl bromide.
[2] Plus sales to farmers.

Included in the above acreage and cost figures are the following fumigants: 165,098 pounds of carbon bisulphide, 176,465 jute waste balls, and 5,982 pounds and 609 capsules of methyl bromide used for field rodent control.

the Sacramento and San Joaquin Valleys and the more northerly and southern parts of the State.

European starling *(Sturnus vulgaris)*.

PREDATORY ANIMAL CONTROL

U. S. Fish and Wildlife Service Co-operating

Financial assistance was received from 35 counties, the Tehama Predator Association, the San Bernardino County Range Improvement Program, the Inyo County Range Improvement Program and the U. S. Army.

The difference in the number of animals recorded this year is insignificant when compared with last year and several preceding years. There has been an increase in predator populations in many areas. This is due in part to the gradual reduction in the predatory animal control program by the State Department of Fish and Game. In the Fiscal Year 1948 State Fish and Game Department trappers accounted for 5,926 coyotes and bobcats. At that time the commercial catch was between 2,000 and 3,000 of these two predators. In fiscal year 1958 the Fish and Game Department catch was 202 coyotes and 54 bobcats.

As noted, the catch number of the bureau for the last few years has not varied a great deal. It is significant, however, that the total take of bobcats and coyotes by all agencies dropped considerably.

Total hunter forces under bureau jurisdiction has varied only slightly in the past 10 years.

Continued effort was made to control small mammals for suppression of rabies in many local areas when such work did not interfere with primary responsibilities.

One hundred sixty-four positive cases of rabies in small mammals were reported by the State Department of Public Health from 33 counties, 139 of which were in skunks. In the interests of rabies suppression, 3,356 skunks were destroyed as compared to the previous annual peak of 3,816 in 1957.

The following is a summary of total funds available for work during 1958:

State of California	$210,316.63
Federal	98,740.84
Counties	220,039.79
Association	14,350.00
San Bernardino Range Improvement Program	3,144.44
Inyo County Range Improvement Program	750.00
Total	$547,341.70

For the fiscal year ending June 30, 1959, the 35 co-operating counties appropriated a total of $232,031.58. The Tehama County Predator Association appropriated $14,760; the San Bernardino County Range Improvement Association Program, $3,000; the Inyo County Range Improvement Program $750 and the U. S. Army, $4,000.

TABLE 5

Predators Taken

Hunters paid by:	*Bear*	*Bobcat*	*Coyote*	*Mt. Lion*	*Badger*	*Fox*	*Skunk*	*Opossum*	*Raccoon*	*Porcupine*	*Total*
State of California	16	1,012	2,644	1	337	1,055	781	509	614	312	7,281
Counties	89	1,544	3,279	3	291	2,285	2,508	847	1,509	212	12,567
Association	—	92	169	—	13	91	58	—	107	11	541
Federal	3	305	568	—	145	250	309	207	161	78	2,026
San Bernardino Range Improvement Program	—	5	105	—	8	8	—	—	—	—	126
Totals	108	2,958	6,765	4	794	3,689	3,656	1,563	2,391	613	22,541

SEED INSPECTION

A hearing was held on revised regulations of the California Seed Law pertaining to the labeling and movement of seed treated after harvest with toxic substances. This revision became effective at the close of 1958. The hearing also covered a proposal to add perennial sorghums to the list of secondary noxious weeds. This revision became effective on June 25, 1958.

A series of seed inspection "workshops" was conducted during the year. Meetings were held at Santa Barbara, Bakersfield, Visalia, Redwood City, Napa, Oakland and Crescent City. Eighty-nine county inspectors attended these meetings which included instruction in the techniques of examining samples for noxious weed seed, a demonstration of seed processing and sampling, a discussion of the differences between quarantine and seed law, and instruction in public relations and seed law enforcement techniques.

Lettuce Mosaic Testing

The official testing of lettuce seed for mosaic content was increased 50 percent during the year. This increase paralleled the production and sale of lettuce seed labeled as "mosaic tested" or "mosaic indexed." This seed, offered for sale within the State, bore labels ranging from "less than one-twentieth of 1 percent mosaic" to "99.9 mosaic free."

The University of California reports that commercial plantings of lettuce seed infested with more than one-tenth of one percent mosaic might not produce a marketable crop if aphid infestations were normal.

To check on label statements relative to mosaic content, the bureau contracted with a private greenhouse operator to grow 3,000 seedlings for a period of 28 days from each of 27 official samples of lettuce seed. The Bureau of Plant Pathology indexed the plantings for mosaic.

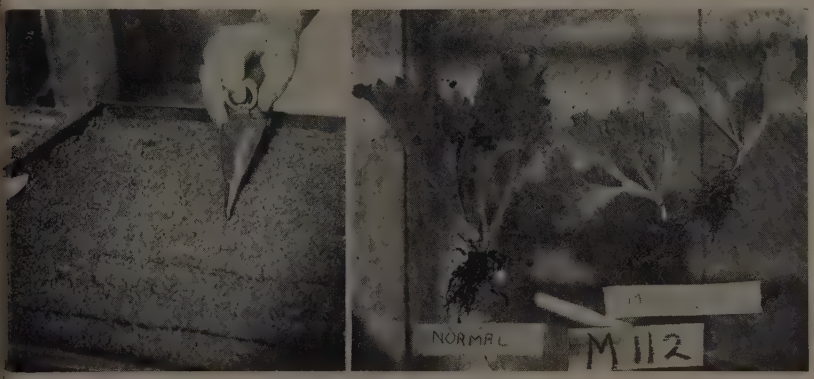
Seven, or 26 percent, of the 27 lots tested were found to be mislabeled in violation of the California Seed Law. The mosaic content of these lots was found to range from 1.16 to 2.15 percent. Action on these violations is pending.

Fieldwork Increases

The seed inspection program showed an increase of 13 percent in the total number of official samples drawn by personnel of the county departments of agriculture.

This increase was more pronounced in the Sacramento-San Joaquin district which submitted 65 percent more official samples than in the previous year. The north coastal district, comprising 16 coastal counties, increased 15 percent during the year. The Southern California district consisting of 13 counties increased only 2 percent, reflecting the vacancy of a district supervisor in that district for six months during the year.

During the year 1,472 official samples were drawn. The samples represented 877 lots of agricultural seed and 595 lots of vegetable seed submitted by the county agricultural commissioners of 39 counties.



t, planting lettuce seed with vibrating seeder to assure proper spacing. Right, a comparison of normal and mosaic infected lettuce seedlings.

Two hundred twenty-one or 25 percent of the lots of agricultural seed samples were in violation of the California Seed Law in the following respects:

	Mislabeled	*Not labeled*
Germination	68	17
Purity	67	21
Inert matter	58	18
Other crop	21	15
Sum of germination and hard seed	12	.
Weed seed	11	...
Name	7	5
Kind	7	17
Miscellaneous statements	6	....
Hard seed	5	2
Variety	1	....
"Certified"	1	....
"Treated seed"	....	5
Date of test	....	16
Name and address	....	6
Noxious weed seed	....	2

Forty-three or 7 percent of the lots of vegetable seed samples were in violation of the California Seed Law in the following respects:

	Mislabeled	*Not labeled*
Germination	15	17
Date of test	....	17
Nonwarranty clause	5	.
Variety	1	.
"Below standard"	....	22
Name and address	....	1

There were 1,879 "stop-sale" orders issued during 1958 for the following violations:

Germination test outdated	1,502
Incompletely labeled	197
Unlabeled	153
Mislabeled	96
Misrepresented as "Certified"	8
"Poison" warning not in red	6
Label not legible	2

During the year one seed law violator was cited before a district attorney.

California Crop Improvement Association Trust Fund

The bureau continued to supervise the regulatory phases of seed certification performed by the various county agricultural commissioners. This service, authorized by the California Seed Law, is financed by the California Crop Improvement Association through a trust fund agreement with the department.

Co-operation With the United States Department of Agriculture

During 1958, the laboratory tested 624 samples of imported seed for the Federal Government requiring 1,246 tests; testing of 186 other miscellaneous federal samples required 281 tests. This is an increase of 1.6 percent in the number of samples tested and 0.6 percent in the number of tests made in comparison with 1957.

State and county personnel reported 36 lots of seed suspected of having been shipped in interstate commerce in violation of the Federal Seed Act. Letters of warning were issued to the shippers by federal authorities for 17 of the lots and action is pending on 18 lots. During 1958 federal authorities initiated proceedings for prosecution of the shipper of one lot reported during 1958 and the shipper of seven lots reported during 1957.

Federal-State Seed Laboratory

The seed laboratory experienced one of its busiest years. An increase was noted in all branches of testing with the exception of certification and investigational tests.

A two-week federal "seed school" was held to instruct 33 official and commercial seed analysts from the western states in uniformity of interpretations and in the latest techniques of seed testing.

The addition of a duplex seed germinator and five binocular microscopes to the laboratory greatly increased the efficiency of the seed testing program.

Fees and Tests

Fees amounting to $42,515.50 were collected on 3,451 service and 3,121 certification samples respectively. Although revenue from service samples increased by 22 percent, the decrease of approximately 3 percent in total revenue was due to decrease of 16 percent revenue from samples submitted by, and tests made for, the California Crop Improvement Association.

Table six summarizes the work, exclusive of federal testing, of the State Seed Laboratories for 1958:

TABLE 6

Tests

	Number of samples	*Purity*	*Germination*	*Identification*	*Noxious weed seed examinations*	*Total tests*
SACRAMENTO LABORATORY						
Official (California Seed Law)						
Agricultural seed	876	878	883	0	0	1,761
Vegetable seed	596	0	596	0	0	596
Service samples	3,451	357	3,420	4	373	4,154
California Crop Improvement Association	3,121	2,574	2,864	0	180	5,618
Investigational samples	812	65	747	0	20	833
Quarantine samples						
Bureau of Plant Quarantine	291	0	0	0	291	291
County Agricultural Commissioners	512	0	0	189	323	512
Total for Sacramento Laboratory	9,662	3,874	8,510	193	1,187	13,764
LOS ANGELES LABORATORY *						
Quarantine samples						
County agricultural commissioners	1,633	0	0	48	1,585	1,633
Totals for Los Angeles Laboratory	1,633	0	0	48	1,585	1,633
GRAND TOTALS	11,295	3,874	8,510	241	2,772	15,397

Identification and noxious weed-seed examinations are the only tests made at this laboratory.

In Memoriam

Boyd, Dr. Geoffrey A., 63, Chief, Bureau of Meat Inspection. October 1, 1958.
Cameron, Amos J., 63, General Auditor II, December 10, 1958.
Carey, Charles Josef, 64, Deputy Director, California Department of Agriculture. April 4, 1959.
Carlson, Dr. Paul A., 46, District Veterinarian, Bureau of Livestock Disease Control. May 21, 1958.
Carroll, William F., 64, San Francisco County Agricultural Commissioner. January 16, 1958.
Cox, Edmund D., 68, Santa Clara County Sealer of Weights and Measures. September 28, 1958.
DeConter, Jane F., 34, Laboratory Assistant. February 10, 1959.
Eichelberger, Roy J., 52, Hunter and Trapper. October 6, 1958.
Hartwell, George L., 66, Madera County Sealer of Weights and Measures. December 18, 1958.
Hulbush, William R., 47, Veterinarian I (Meat and Poultry Meat Hygiene). March 9, 1958.
Hunter, William L., 49, Chief, Bureau of Field Crops. March 16, 1958.
Hutchens, Vernon M., 44, Hunter and Trapper. August 31, 1958.
Krupka, Henry, 61, Junior Plant Quarantine Inspector. July 22, 1958.
Norton, Walter B., 64, Specialist in Milk and Milk Products. January 17, 1959.
Ostrom, Alta G., 56, Intermediate Typist Clerk. January 1, 1959.
Pryor, Joe Paul, 46, Junior Plant Quarantine Inspector. February 5, 1959.
Roesner, E. M., 66, Veterinarian II (Meat Hygiene). October 15, 1958.
Tantillo, Jack S., 52, Senior Canning Tomato Standardization Inspector. October 23, 1958.
Twomey, Leo P., 45, Investigator, Bureau of Market Enforcement. October 6, 1958.
White, Dr. B. B., 59, Veterinarian III, Bureau of Livestock Disease Control. August 1, 1958.

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CALIFORNIA COUNTY AGRICULTURAL COMMISSIONERS

Alameda	Edward K. Strobridge, Jr., 140 12th St., Oakland 7
Amador	Leland Brown (P. O. Box 74), Courthouse, Jackson
Butte	L. D. McCorkindale (P. O. Box 1229), Agricultural Bldg., Oroville
Calaveras	W. B. Andahl (P. O. Box 848), San Andreas
Colusa	Fielden F. Swim, 751 Fremont St., Colusa
Contra Costa	A. L. Seeley, Buchanan Field, Concord
Del Norte	L. J. Garrett, Jr. (P. O. Box 605), Crescent City
El Dorado	Lowell D. Mobley (P. O. Box 587), Government Center, Placerville
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Humboldt	W. Donald Thomas (P. O. Box 486), 833 Sixth St., Eureka
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Kings	L. O. Haupt, 280 11½ Ave., Hanford
Lake	Rex Lyndall, Kelseyville
Lassen	E. E. Fix, Veteran's Memorial Bldg., Susanville
Los Angeles	H. J. Ryan, 808 N. Spring St., Los Angeles 12
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Marin	Thomas W. Peryam (P. O. Box 207), 519 4th St., San Rafael
Mendocino	Theodore Eriksen, Jr., P. O. Box 353, Ukiah
Merced	E. A. Danison, 740 West 22d St., Merced
Modoc	Loring White, P. O. Box 1091, Alturas
Monterey	Peter A. Kantor (P. O. Box 1370), Agricultural Bldg., 120 Wilgart Way, Salinas
Napa	Gene Cornett, 1436 Polk St., Napa
Nevada	Leonard G. Lageson, Memorial Bldg., Grass Valley
Orange	William Fitchen, 9846 S. Harbor Blvd., Anaheim
Placer	W. H. Wilson, 356 Elm Ave., Auburn
Plumas	Neil A. Overgaard (P. O. Box 45), Plumas County Fairgrounds, Quincy
Riverside	Robert M. Howie, 4060 Orange St., Riverside
Sacramento	A. E. Morrison, 120 Courthouse, Sacramento
San Benito	Ward B. Saunders, Courthouse, Hollister
San Bernardino	H. A. Crane, 566 Lugo Ave., San Bernardino
San Diego	Dean F. Palmer, Bldg. 2, 4005 Rosecrans St. (P. O. Box G), San Diego
San Francisco	R. L. Bozzini, Agriculture Bldg., Embarcadero at Mission, San Francisco
San Joaquin	Austin Mahoney (P. O. Box 1809), 1868 E. Hazleton Ave., Stockton
San Luis Obispo	Thomas Chalmers (P. O. Box 637), 1025 Palm St., San Luis Obispo
San Mateo	Max J. Leonard (P. O. Box 1009), Agricultural Bldg., Redwood City
Santa Barbara	Walter S. Cummings (P. O. Box 127), County Office Bldg., Santa Barbara
Santa Clara	David T. Rayner, 227 N. First St., San Jose
Santa Cruz	Matt Mello (P. O. Box 590), 1430 Freedom Blvd., Watsonville
Shasta	C. Bruce Wade (P. O. Box 707), County Office Bldg., 1835 Placer St., Redding
Sierra	Neil A. Overgaard (Acting) (P. O. Box 45), Quincy
Siskiyou	Jess R. Grisham, Courthouse Annex, Yreka
Solano	George A. Pohl, Library Bldg., Fairfield
Sonoma	Percy F. Wright, 912 Santa Rosa Ave., Santa Rosa
Stanislaus	Milo M. Schrock (P. O. Box 2015), Agricultural Bldg., Modesto
Sutter	T. D. Urbahns, 142 Garden Way, Agricultural Bldg., Yuba City
Tehama	S. T. Ancell (P. O. Box 30), Agricultural Bldg., Red Bluff
Tulare	E. O. Mankins, Rm. 12-E, Courthouse, Visalia
Tuolumne	Edw. J. Bigelow, 9 N. Washington St., Sonora
Ventura	Chester J. Barrett, 815 Santa Barbara St. (P. O. Box 889), Santa Paula
Yolo	Charles H. Hardy (P. O. Box 175), Agricultural Center, Woodland
Yuba	Arthur W. Worledge (P. O. Box 264), 1420 I St., Marysville

The following counties have no agricultural commissioner:
Alpine, Inyo, Mariposa, Mono, Trinity.

California Department of Agriculture Building, 1220 "N" Street, Sacramento

DEPARTMENT OF AGRICULTURE

W. C. JACOBSEN, *Director*
CHARLES V. DICK, *Deputy Director*
DR. A. G. BOYD, *Assistant Director*
W. J. KHURT, *Assistant Director*

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Marie Gallagher, Assistant Fiscal Officer
Charles P. Cusick, Personnel Officer
Francis G. Stoffels, Assistant Personnel Officer
Clifford Clower, Photographer
Merle Hussong, Information Officer
Robert H. Anderson, Assistant Information Officer
Anne Marie Wise, Supervisor of Central Services

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Dr. E. F. Chastain, Assistant Chief

Bureau of Dairy Service—2136
O. A. Ghiggoile, Chief
A. E. Reynolds, Assistant Chief

Bureau of Meat Inspection—2887
Dr. R. W. McFarland, Chief
Dr. G. W. Yeager, Assistant Chief

Bureau of Livestock Identification—3057
Paul Robertson, Chief

Bureau of Poultry Inspection—2908
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Bureau of Plant Quarantine—3248
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L. C. Schafer, Assistant Chief

Bureau of Agricultural Statistics—2056
W. Ward Henderson, Chief
J. E. Mullin, Assistant Chief

Bureau of Fruit and Vegetable Standardization—3831
H. W. Poulsen, Chief
S. R. Whipple, Assistant Chief

Bureau of Shipping Point Inspection—3914
H. W. Peterson, Chief
P. V. Stay, Assistant Chief

Bureau of Weights and Measures—3511
J. E. Brenton, Chief
Burris G. Wood, Assistant Chief

Local Phone Numbers Are Listed Following Each Division and Bureau
The State Phone Number Is: HI ckory 5-4711